

archives

ARCHIVES
SDSU

BULLETIN

GRADUATE DIVISION

SAN
DIEGO
STATE



1971
1972

GP
002

SAN DIEGO STATE COLLEGE LIBRARY

TABLE OF CONTENTS

BULLETIN OF THE GRADUATE DIVISION

**GRADUATE CURRICULA AT
SAN DIEGO STATE**

1971-1972

SAN DIEGO STATE
SAN DIEGO, CALIFORNIA 92115

TABLE OF CONTENTS

	Page		Page
CALENDAR FOR THE ACADEMIC YEAR	5	FEEES	8

PART ONE THE CALIFORNIA STATE COLLEGES

BOARD OF TRUSTEES	11	OFFICE OF THE CHANCELLOR	13
OFFICERS OF THE TRUSTEES	12	THE CALIFORNIA STATE COLLEGES	13

PART TWO SAN DIEGO STATE

ADMINISTRATION	17	Catalogs and Bulletins	22
ADVISORY BOARD	19	Academic Year	22
RESEARCH BUREAUS	19	Living Accommodations	23
GENERAL INFORMATION	20	Personnel Services Center	23
Accreditation	20	Student Health Services	23
The Faculty	21	Career Planning and Placement Center	23
The Library	21	Cost of Living	24
Research	21		

PART THREE THE GRADUATE DIVISION

THE GRADUATE COUNCIL	26	Applying for Aid	32
Duties and Responsibilities	26	Institute for Secondary School Teachers of Mathematics	32
AUTHORIZED GRADUATE DEGREES	27	ADMISSION OF GRADUATE STUDENTS TO SAN DIEGO STATE	33
Teaching Credentials	28	Application for Admission	33
Graduate Study in the Summer Session	28	Admission of Foreign Graduate Students to San Diego State	34
Graduate Study for Foreign Students	28	Unclassified Graduate Student Enrollment	35
Veterans and Graduate Study	28	Residency Status Clearance	35
Graduate Teaching Assistantships	29	Admission of Graduate Students	35
Graduate Assistantships	29	Registration	35
Waiver, Nonresident Tuition Fee	29	Registration Priority for Payment of Fees	35
Graduate Scholarships and Awards	30	Changes in Class Schedule	36
Stipends for Social Work	30	Limitation of Enrollment	36
State Graduate Fellowships	30	ADMISSION OF STUDENTS TO THE GRADUATE DIVISION	37
Financial Aid	30	Classified Graduate Standing	37
San Diego State Foundation Loan Program	31	Advancement to Candidacy	38
National Defense Student Loan Program	31	Withdrawals	38
United Student Aid Program	31	Concurrent Master's Degree Credit	38
Federally Insured Loan Programs	31	Second Master's Degree	38
College Work-Study Program	31		
Minimum Requirements for All Applicants	31		
Eligibility for Aid	32		

TABLE OF CONTENTS—Continued

PART THREE—Continued THE GRADUATE DIVISION

	Page		Page
REGULATIONS OF GRADUATE DIVISION	39	Auditors	42
Numbering of Courses	39	Final Examinations	43
Grading System	39	Transfer or Extension Credit	43
Grade Point Averages	39	Study List Limits in the Graduate Division	43
Incomplete Grade	39	Official Programs of Study	43
Uncompleted Theses	40	Application for Graduation	43
Withdrawals	40	BASIC REQUIREMENTS FOR THE MASTER'S DEGREE	44
Official Withdrawal	40	Advancement to Candidacy	44
Unofficial Withdrawal	40	Examinations	44
Readmission	40	Foreign Language Requirements	44
Repeated Courses	41	Unit Requirements	45
Probation and Disqualification for Scholarship	41	Course Requirements	45
Scholastic Disqualification from the Graduate Division	41	Thesis	46
Petition for Readmission	41	Grade Point Averages	46
Student Discipline and Attendance	41	Final Approval	47
Student Grievances	42	Award of Degrees	47
Transcripts of Record	42	Diploma	47
		REQUIREMENTS FOR THE JOINT DOCTORAL DEGREES	47

PART FOUR FIELDS OF STUDY AND COURSES OF INSTRUCTION

Prerequisites for Graduate Courses	49	Industrial Arts	161
Unit or Credit Hour	49	Latin-American Studies	164
American Studies	50	Linguistics	167
Anthropology	53	Mass Communications	169
Art	57	Mathematics	172
Asian Studies	61	Microbiology	177
Astronomy	64	Music	179
Biological Sciences	67	Philosophy	183
Master's Degree	67	Physical Education	186
Doctor's Degree in Ecology	68	Physical Sciences	189
Doctor's Degree in Genetics	71	Physics	191
Business Administration	82	Political Science	194
Chemistry	92	Psychology	198
Master's Degree	92	Public Administration and Urban Studies	203
Doctor's Degree	93	Russian	209
Drama	99	Social Science	211
Economics	102	Social Work	213
Education	105	Sociology	221
Engineering	120	Spanish	224
English	135	Speech Communication	227
French	139	Speech Pathology and Audiology	230
Geography	142	Telecommunications and Film	233
Geology	146	Graduate Courses	236
German	149	Library Science	236
Health Science and Safety	152	Recreation	236
History	154		
Home Economics	158		
INDEX	237		

ACADEMIC CALENDAR

1971-1972

1971 SUMMER SESSIONS

June 19	Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.
June 28-August 6	Term I Summer Session (6 weeks).
July 23	Last day to apply for summer graduation with the master's degree, Graduate Office.
July 24	Graduate School Foreign Language Test, by appointment four weeks in advance, Test Office.
July 28	Graduate Record Examination Aptitude Test for master's degree applicants, 6:15-10:00 p.m., by appointment four weeks in advance, Test Office.
August 6	Final date for depositing completed bound theses at Graduate Office for summer graduation. Also last day for reporting results on comprehensive examinations to the Graduate Office by department, school, or college.
August 9-27	Term II Summer Session (3 weeks).
August 21	Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.

FALL SEMESTER

May 5-28	Registration, payment of fees, advising, and enrollment in classes for continuing students.
August 1-31	Applications for admission or readmission to San Diego State for the spring semester, 1972. Accepted after this date only until enrollment quotas are met.
September 13	Opening date of the academic year.
September 13-17	Registration, payment of fees, advising, and enrollment in classes for new students.
September 20	First day of classes.
September 25	Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.
October 5	Last day to apply for refunds.
October 8	Last day to withdraw from class without penalty for unsatisfactory work.
October 9	Graduate School Foreign Language Test, by appointment four weeks in advance, Test Office.
October 11	Holiday—Columbus Day.
October 23	Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.
October 25	Holiday—Veterans' Day.
November 1-30	Applications for admission or readmission to San Diego State for the fall semester, 1972. Accepted after this date only until enrollment quotas are met.
November 13	Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.
November 19	Last day to withdraw from class or change program.
November 23	Graduate Record Examination Aptitude Test for master's degree applicants, 6:15-10:00 p.m., by appointment four weeks in advance, Test Office.
November 25-27	Thanksgiving recess.
December 10	Last day to apply for mid-year graduation with the master's degree, Graduate Office.

ARCHIVES
SDSU

231103A
U202

ACADEMIC CALENDAR—Continued
1971-1972

FALL SEMESTER—Continued

- December 11 Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.
- December 18 Last day of classes before winter recess.
- December 20-21 Winter recess.
- January 1 Classes resume.
- January 3 Last day for a complete withdrawal from the College.
- January 5 Last day of classes before final examinations.
- January 15 Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.
- January 15 Study and consultation.
- January 17-18 First day of final examinations.
- January 19 Last day of the fall semester.
- January 28

SPRING SEMESTER

- August 1-31 Applications for admission or readmission to San Diego State for the spring semester, 1972. Accepted after this date only until enrollment quotas are met.
- January 31 First day, second semester.
- January 31-February 4 Registration, payment of fees, advising, and enrollment in classes. (These dates for continuing students subject to change. See Class Schedule.)
- February 1 Graduate Record Examination Aptitude Test for master's degree applicants, 6:15-10:00 p.m., by appointment four weeks in advance, Test Office.
- February 5 Graduate School Foreign Language Test, by appointment four weeks in advance, Test Office.
- February 7 First day of classes.
- February 12 Holiday—Lincoln's Birthday.
- February 21 Holiday—Washington's Birthday.
- February 22 Last day to apply for refunds.
- February 25 Last day to withdraw from class without penalty for unsatisfactory work.
- February 26 Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.
- March 11 Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.
- March 25 Last day of classes before spring recess.
- March 27-31 Spring recess.
- April 3 Classes resume.
- April 14 Last day to withdraw from classes or change program.
- April 14 Last day to apply for June graduation with the master's degree, Graduate Office.
- April 15 Graduate School Foreign Language Test, by appointment four weeks in advance, Test Office.
- April 22 Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.
- May 5 Last day for submitting committee-approved theses at Graduate Office for final approval prior to binding for June graduation and removal of incompletes.
- May 10 Graduate Record Examination Aptitude Test for master's degree applicants, 6:15-10:00 p.m., by appointment four weeks in advance, Test Office.
- May 18 Last day for a complete withdrawal from the College.

ACADEMIC CALENDAR—Continued
1971-1972

SPRING SEMESTER—Continued

- May 19 Last day for depositing completed bound theses at Graduate Office for June graduation. Also last day for reporting results on comprehensive examinations to the Graduate Office by department, school, or college.
- May 27 Last day of classes before final examinations.
- May 29 Holiday—Memorial Day.
- May 29-30 Study and consultation.
- May 31 First day of final examinations.
- June 4 Baccalaureate Services.
- June 9 Commencement. Last day of spring semester.

1972 SUMMER SESSIONS

- June 12-23 Intersession (2 weeks).
- June 17 Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.
- June 26-August 4 Term I Summer Session (6 weeks).
- July 21 Last day to apply for summer graduation with the master's degree, Graduate Office.
- July 22 Graduate School Foreign Language Test, by appointment four weeks in advance, Test Office.
- July 26 Graduate Record Examination Aptitude Test for master's degree applicants, 6:15-10:00 p.m., by appointment four weeks in advance, Test Office.
- August 4 Final date for depositing completed bound theses at Graduate Office for summer graduation. Also last day for reporting results on comprehensive examinations to the Graduate Office by department, school, or college.
- August 7-25 Term II Summer Session (3 weeks).
- August 19 Graduate Record Examination Aptitude Test for master's degree applicants, 8:30-12:00 noon, by appointment four weeks in advance, Test Office.

FEES

Fees are subject to change by the Trustees of the California State Colleges.

FEES PAYABLE AT TIME OF REGISTRATION

Materials and service		
Units enrolled		
0- 3.9	_____	Fee
4- 7.9	_____	\$39.00
8-11.9	_____	44.00
12 or more	_____	49.00
Student activity fee	_____	59.00
Student Union	_____	9.50
Facilities fee	_____	7.00
Auditors pay same fees as students carrying courses for credit.	_____	3.00

Tuition for nonresident student:

(In addition to materials and service, activity, and student union fees)

Nonresident student enrolled for 15 units or more	_____	\$555.00
Nonresident student enrolled for less than 15 units, or fraction thereof (per unit)	_____	\$37.00

(For fee-paying purposes, zero unit courses are counted as one unit.)

Tuition for foreign student (citizen and resident of a foreign country) continuously enrolled prior to Spring Semester 1971:

(In addition to materials and service, activity, and student union fees)

Foreign student enrolled for 15 units or more	_____	\$300.00
Foreign student enrolled for less than 15 units or fraction thereof (per unit)	_____	\$20.00

(For fee-paying purposes, zero unit courses are counted as one unit.)

Tuition for foreign student (citizen and resident of a foreign country) enrolling for the first time Spring Semester 1971 and thereafter:

(In addition to materials and service, activity, and student union fees)

Foreign student enrolled for 15 units or more	_____	\$555.00
Foreign student enrolled for less than 15 units or fraction thereof (per unit)	_____	\$37.00

(For fee-paying purposes, zero unit courses are counted as one unit.)

Parking fees:

Students enrolled in more than six units	_____	\$13.00
Each alternate car in addition to first vehicle	_____	1.00
Two-wheeled, self-propelled vehicle	_____	3.25

MISCELLANEOUS FEES

(Fees payable when service is rendered)

Application fee for admission or readmission to the College (non-refundable)	_____	\$20.00
Late registration	_____	5.00
Change of program	_____	1.00
Failure to meet administratively required appointment or time limit	_____	2.00
Transcript of record (first copy free)	_____	1.00
Check returned for any cause	_____	2.00
Organ practice	_____	10.00
Loss or damage of equipment and library books	_____	Cost

REGULAR SESSION FEE REFUNDS

Materials and service fees:

To be eligible for partial refunds of materials and service fees, a student withdrawing from college must file an application with the Business Office not later than 14 days following the day of the term when instruction begins; and provided, further, that the amount of \$10 shall be retained to cover the cost of registration.

Nonresident and foreign student tuition:

Tuition paid for a course scheduled to continue for an entire semester may be refunded in accordance with the following schedule if application therefor is received by the Business Office within the following time limits:

Time limit	Amount of refund
(1) Before or during the first week of the semester	100 percent of fee
(2) During the second week of the semester	90 percent of fee
(3) During the third week of the semester	70 percent of fee
(4) During the fourth week of the semester	50 percent of fee
(5) During the fifth week of the semester	30 percent of fee
(6) During the sixth week of the semester	20 percent of fee

Parking fee:

This schedule of refunds refers to calendar days, commencing on the date of the term when instruction begins:

Nonreserved space per semester:

Period	Amount of refund
1-30 days	75 percent of fee
31-60 days	50 percent of fee
61-90 days	25 percent of fee
91-end of term	None

The late registration fee is not refundable.

The Business Office should be consulted for further refund details.

SUMMER SESSION FEES

Tuition, each session	_____	(per unit) \$24.00
Activity fee:		
Term I	_____	2.00
Term II	_____	1.00
Student union fee (required):		
Term I	_____	3.50
Term II	_____	2.00
Parking fees:		
Nonreserved spaces:		
Six-week session	_____	5.00
Other sessions of one week or more	_____	(per week) 1.00

EXEMPTIONS

Students under Public Law 87-815, 894, California state veteran, or state rehabilitation programs will have fees paid for tuition and materials and service under provisions of these respective programs.

VETERAN ALLOWANCES

Allowances for subsistence begin on the date the Business Office clears for payment of fees, or effective date of VA authorization, whichever is later, except that veterans clearing the Business Office on the regular registration days will be certified for subsistence beginning with the first day of the registration schedule.

FEES SUBJECT TO CHANGE

Fees are subject to change by the Trustees of the California State Colleges.

APPOINTED TRUSTEES—Continued

OFFICER TRUSTEES

PART ONE

BOARD OF TRUSTEES OF THE CALIFORNIA STATE COLLEGES

5670 Wilshire Boulevard
Los Angeles, California 90036

EX OFFICIO TRUSTEES

Hon. Ronald Reagan State Capitol, Sacramento 95814
Governor of California and President of the Trustees

Hon. Ed Reinecke State Capitol, Sacramento 95814
Lieutenant Governor of California

Hon. Bob Moretti State Capitol, Sacramento 95814
Speaker of the Assembly

Hon. Wilson Riles 721 Capitol Mall, Sacramento 95814
State Superintendent of Public Instruction

Dr. Glenn S. Dumke 5670 Wilshire Blvd., Los Angeles 90036
Chancellor of The California State Colleges

APPOINTED TRUSTEES

The term of the appointed trustees is eight years, and terms expire March 1 of the years indicated in parentheses. Names are listed in order of accession to the board.

Charles Luckman (1974)
9220 Sunset Boulevard
Los Angeles 90069

Theodore Meriam (1971)
P.O. Box 370
Chico 95926

Albert J. Ruffo (1971)
675 North First Street, Suite 1200
San Jose 95112

Mrs. Philip Conley (1972)
3729 Huntington Boulevard
Fresno 93702

E. Guy Warren (1973)
P.O. Box 59
Hayward 94541

Daniel H. Ridder (1975)
604 Pine Avenue
Long Beach 90801

George D. Hart (1975)
111 Sutter Street
San Francisco 94104

Alec L. Cory (1973)
530 B Street, Suite 1900
San Diego 92101

William A. Norris (1972)
609 South Grand Avenue
Los Angeles 90017

Edward O. Lee (1974)
610 16th Street, Room 420
Oakland 94612

Karl L. Wente (1976)
5565 Tesla Road
Livermore 94550

Dudley Swim (1976)
Box 5000, Route 2, Carmel Valley
Road
Carmel 93924

E. Litton Bivans (1977)
2431 Dallas Street
Los Angeles 90031

W. O. Weissich (1977)
1299 Fourth Street
San Rafael 94901

Robert A. Hornby (1978)
P.O. Box 60043, Terminal Annex
Los Angeles 90060

Phillip V. Sanchez (1978)
1015 East Alluvial Street
Fresno 93726

APPOINTED TRUSTEES—Continued

OFFICERS OF THE TRUSTEES

Governor Ronald Reagan
President
E. Guy Warren
Chairman

Alec L. Cory
Vice Chairman
Chancellor Glenn S. Dumke
Secretary-Treasurer

OFFICE OF THE CHANCELLOR OF THE
CALIFORNIA STATE COLLEGES

5670 Wilshire Boulevard
Los Angeles, California 90036
213 938-2981

Chancellor	Glenn S. Dumke
Executive Vice Chancellor	Harry E. Brakebill
Assistant Chancellor, Faculty and Staff Affairs	C. Mansel Keene
Vice Chancellor, Academic Affairs	William B. Langsdorf
Vice Chancellor, Business Affairs	D. Dale Hanner
Vice Chancellor, and General Counsel	Norman Epstein
Vice Chancellor, Physical Planning and Development	Harry Harmon

THE CALIFORNIA STATE COLLEGES

California State College, Bakersfield
9001 Stockdale Highway
Bakersfield, California 93309
Paul F. Romberg, President
805 833-2011

California State College, Dominguez Hills
1000 East Victoria Street
Dominguez Hills, California 90247
Leo F. Cain, President
213 532-4300

California State College, Fullerton
800 North State College Boulevard
Fullerton, California 92631
L. Donald Shields, Acting President
714 870-2111

California State College, Hayward
25800 Hillary Street
Hayward, California 94542
Ellis E. McCune, President
415 538-8000

California State College, Long Beach
6101 East Seventh Street
Long Beach, California 90804
Stephen Horn, President
213 433-0951

California State College, Los Angeles
5151 State College Drive
Los Angeles, California 90032
John A. Greenlee, President
213 224-2011

California State College, San Bernardino
5500 State College Parkway
San Bernardino, California 92407
John M. Pfau, President
714 887-6311

California State Polytechnic College, Kellogg-Voorhis
3801 West Temple Avenue
Pomona, California 91766
Robert C. Kramer, President
213 964-6424

California State Polytechnic College, San Luis Obispo
San Luis Obispo, California 93401
Robert E. Kennedy, President
805 546-0111

Chico State College
Chico, California 95926
Stanford Cazier, President
916 345-5011

Fresno State College
Shaw and Cedar Avenues
Fresno, California 93726
Norman A. Baxter, President
209 487-9011

Humboldt State College
Arcata, California 95521
Cornelius H. Siemens, President
707 826-3011

Sacramento State College
6000 Jay Street
Sacramento, California 95819
Bernard L. Hyink, President
916 454-6011

San Diego State College
5402 College Avenue
San Diego, California 92115
Malcolm A. Love, President
714 286-5000

San Fernando Valley State College
18111 Nordhoff Street
Northridge, California 91324
James E. Cleary, President
213 349-1200

San Francisco State College
1600 Holloway Avenue
San Francisco, California 94132
S. I. Hayakawa, President
415 469-9123

San Jose State College
125 South Seventh Street
San Jose, California 95114
John H. Bunzel, President
408 294-6414

Sonoma State College
1801 East Cotati Avenue
Rohnert Park (Cotati), California 94928
Thomas H. McGrath, President
707 795-2011

Stanislaus State College
800 Monte Vista Avenue
Turlock, California 95380
Carl Gatlin, President
209 634-9101

Academic year 1971-72 marks for the California State Colleges the beginning of their second decade of service to the people of California as a unified system of public higher education—the largest such system in the Western Hemisphere and one of the largest in the world. Brought together as a system under an independent Board of Trustees as a result of the Donahoe Higher Education Act in the early 1960's, the California State Colleges now number nineteen, covering the state from Humboldt State College in the north to San Diego State College in the south. Current enrollment exceeds 244,000 full- and part-time students, with a faculty of approximately 14,000.

Responsibility for the California State Colleges is vested in the Board of Trustees, whose members are appointed by the Governor, and the Chancellor, who is the executive officer of the system. The Trustees and the Chancellor develop system-wide policy, with implementation taking place at the campus level. The Academic Senate of the California State Colleges, made up of elected representatives of the faculty from each college, recommends academic policy to the Board of Trustees through the Chancellor.

Each college in the system has its own unique geographic and curricular character, but all emphasize the liberal arts and sciences. Programs leading to the bachelor's and master's degrees are master-planned to anticipate and accommodate student interest and the educational and professional needs of the State of California. A limited number of joint doctoral programs are also offered. Although there is increasing recognition of the importance of research to the maintenance of quality teaching, the primary responsibility of the faculty continues to be the instructional process.

While San Jose State College, the oldest, was founded over a century ago, prior to World War II only seven State Colleges were in existence, with a total enrollment of 13,000. Since 1947, twelve new colleges have been established, and sites have been selected for additional campuses in Ventura, San Mateo, and Contra Costa counties. California State College, Bakersfield, the newest, was opened to students only last year. Enrollment in the system is expected to pass 400,000 by 1980.

PART TWO
SAN DIEGO STATE
GENERAL INFORMATION

ADMINISTRATION	
President	Malcolm A. Love
Assistant to the President	Lloyd A. Walker
Executive Dean	George A. Koester
Administrative Analyst	Margaret L. Gilbert
Manager, ADP Services	Robert W. Swanson
Director of Institutional Studies	Robert L. McCornack
Facilities Planning Assistant	Clarence B. Cover
Vice President, Administration	Ernest B. O'Byrne
Assistant to the Vice President, Administration	Rene Nuñez
Director of Centro de Estudios Chicanos	Wayman H. L. Johnson
Director of Educational Opportunities Program	Carlos LeGerrette
Director of Educational Opportunities Program	Gordon F. Lee
Publications and Public Relations Manager	William L. Erickson
Manager, San Diego State College Foundation	Donald E. Walker
Vice President, Academic Affairs	Adrian J. Kochanski
Dean of Academic Planning	Harry Ruja
Associate Dean, Curriculum	George C. Gross
Associate Dean, Faculty Personnel	Robert S. Ackerly, Jr.
Associate Dean, Staffing and Reporting	Ned V. Joy
Dean of Undergraduate Studies	Carrol W. Waymon
Director of Afro-American Studies	Carlos G. Velez-I.
Director of Mexican-American Studies	Clayton M. Gjerde
Dean of Extended Services and Summer Sessions	E. Glenn Fulkerson
Director of Audio-Visual Services	Manville R. Petteys
Coordinator of Extended Services	Marvin H. Platz
Coordinator of Summer Sessions	Maurice M. Lemme
Dean of Graduate Studies	Millard R. Biggs
Associate Dean of Graduate Studies	Louis A. Kenney
Director of Libraries	Maurice L. Crawford
Secretary to the Faculty	Herbert C. Peiffer, Jr.
Dean of Students	C. Shuford Swift
Assistant to the Dean of Students	Margery Ann Warmer
Dean of Activities	E. June Warren
Dean of Admissions and Records	Robert E. Downen
Admissions Officer	Paul W. McCoy
Registrar	Charles L. Hanson
Coordinator of Aztec Center	Donald F. Harder
Dean of Counseling and Testing	Henry E. McAdams
Coordinator of Advising	Earl F. Peisner
Coordinator of Counseling	Michael A. Irwin
Test Officer	Herman Roemmich
Test Officer	Robert C. Ray, M.D.
Director of Health Services	John M. Yarborough
Director of Housing	
Director of Placement, Career Planning, and Financial Aids	Edward M. Webb
Coordinator of Career Planning and Placement	Lash H. Laker
Coordinator of Financial Aid and Scholarships	Thomas R. Pearson

Scholarship Adviser	Richard B. Haines
Graduate Manager, Associated Students	Harvey J. Goodfriend
Business Manager	William L. Erickson
Accounting Officer	Grant L. Nielsen
Administrative Assistant	Carolyn E. Kessler
Business Services Officer	Willa D. Roelofsz
Housing Manager	Willard W. Trask
Chief of Plant Operations	Timothy V. Hallahan
Personnel Officer	Lois W. Sisson

COLLEGES, SCHOOLS, AND DEPARTMENTS

COLLEGE OF ARTS AND LETTERS

Associate Dean	Warren P. Carrier, Dean
Anthropology Department	Daniel D. Whitney
Classical and Oriental Languages Department	Mary E. Shutler
Economics Department	Steven C. Schaber
English Department	Robert E. Barckley
French-Italian Department	Lowell Tozer (Acting)
Geography Department	Hilda B. Nelson
German-Russian Department	Richard D. Wright
History Department	Harry W. Paulin
Philosophy Department	Dennis E. Berge
Political Science Department	Patricia A. Crawford
Religious Studies Department	Richard C. Gripp
Sociology Department	G. Ray Jordan (Acting)
Spanish-Portuguese Department	Thomas L. Gillette
	James L. Walsh

Chairmen

COLLEGE OF PROFESSIONAL STUDIES

Associate Dean	Harold H. Haak, Dean
Aerospace Studies Department	Norman Rost
Art Department	Lt. Col. Frederick E. Schwab
Athletics Department	John H. Dirks
Drama Department	O. Kenneth Karr, Jr.
Health Science and Safety Department	Don W. Powell
Home Economics Department	William C. Burgess
Industrial Arts Department	Donald W. Thiel
Journalism Department	Wirt L. McLoney
Music Department	Eric M. Odendahl
Nursing Department	J. Dayton Smith
Physical Education Department	Dora M. Blackmon
Public Administration and Urban Studies	William H. Phillips, Jr.
Recreation Department	James D. Kitchen
Speech Communication Department	Ray R. Butler
Speech Pathology and Audiology Department	Jack Mills
Telecommunications and Film Department	Sue W. Earnest
	Robert E. Lee

COLLEGE OF SCIENCES

Associate Dean	Albert W. Johnson, Dean
Associate Dean	John D. Schopp
Astronomy Department	Hale L. Wedberg
Biology Department	Burt Nelson
Botany Department	William E. Hazen
Chemistry Department	Hale L. Wedberg
Geology Department	Earl P. Wadsworth, Jr.
Mathematics Department	R. Gordon Gastil
Microbiology Department	Calvin V. Holmes
Physical Science Department	William L. Baxter
Physics Department	Norman F. Dessel
Psychology Department	Jacques D. Templin
Zoology Department	Robert Penn
	Richard E. Etheridge

Chairmen

SCHOOL OF BUSINESS ADMINISTRATION	Robert P. Hungate, Dean
Associate Dean	Maurice L. Crawford
Assistant Dean for Graduate Study	Thomas R. Wotruba
Accounting Department	W. Wallace Harned
Finance Department	William W. Reints
Information Systems Department	Robert G. Langenbach
Management Department	Thomas J. Atchison
Marketing Department	Donald A. Lindgren

SCHOOL OF EDUCATION	Manfred H. Schrupp, Dean
Associate Dean	Francis A. Ballantine
Coordinator, Department of Educational Administration	Howard B. Holt
Coordinator, Department of Counselor Education	Paul Bruce
Coordinator, Department of Elementary Education	Robert R. Nardelli
Coordinator, Department of Library Science	T. Wayne McAllister
Coordinator, Department of Secondary Education	Sigurd Stautland
Coordinator, Department of Special Education	Shirley E. Forbing
Coordinator, Clinical Training Center	Leif Fearn
Coordinator, Community College Programs	Robert D. Smith, Jr.
Coordinator, Graduate Programs	Ramon R. Ross

SCHOOL OF ENGINEERING	Martin P. Capp, Dean
Associate Dean	Fredrick T. Quiett
Aerospace Engineering Department	John F. Conly
Civil Engineering Department	Iraj Noorany
Electrical and Electronic Engineering Department	Vincent R. Learned
Mechanical Engineering Department	Richard A. Fitz

SCHOOL OF SOCIAL WORK	Kurt Reichert, Dean
Associate Dean	Joseph B. Kelley

SAN DIEGO STATE ADVISORY BOARD

Arthur S. Johnson, Chairman	Carl M. Esenoff
Everett Gee Jackson, Vice Chairman	George H. Foster
Clayton H. Brace	John W. Quimby
Harry E. Callaway	Orien W. Todd, Jr.
Armistead B. Carter	Dr. Harvey J. Urban
William G. Dufflock	Burnet C. Wohlford

Associate Members

Mrs. Joseph T. Berthelet	President, San Diego Branch, American Association of University Women
Mrs. L. A. Cartwright	President, Ninth District, California Congress of Parents and Teachers, Inc.
James H. Ashcraft	President, San Diego State College Alumni Association

RESEARCH BUREAUS

Bureau of Business and Economic Research	James W. Walker, Director
Bureau of Marine Sciences	Glenn A. Fittner, Director
Bureau of Educational Services and Research	David H. Ford, Coordinator
Center for Asian Studies	Alvin D. Coox, Director
Center for Economic Education	Joseph McClintic, Director
Center for Latin-American Studies	Philip F. Flemion, Director
Center for Public Economics	George Babilot, Director
Center for Research in Economic Development	Murugappa Madhavan, Coordinator
Center for the Study of Counselor Education	Emery J. Cummins, Director
Center for Survey Research	Oscar Kaplan, Director
Economics Research Center	Arthur E. Kartman, Coordinator
Institute of Labor Economics	Adam Gifford, Coordinator
Institute of Public and Urban Affairs	W. Richard Bigger, Director
Social Research Center	Aubrey Wendling, Director

GENERAL INFORMATION

San Diego State, founded in 1897, is one of the nineteen publicly supported California State Colleges governed by the Board of Trustees of the California State Colleges and administered through the Office of the Chancellor by the President. The primary purpose of the institution is to provide instruction for undergraduate and graduate students, through the bachelor's and master's degrees, in the liberal arts and sciences, in applied fields and in the professions, including the teaching profession. Doctoral degrees are awarded jointly with the University of California.

The campus is situated at the eastern boundary of the city of San Diego on a mesa overlooking Mission Valley, the site of the first mission founded in California by Father Junipero Serra. Mission Valley Freeway cuts through the valley, bringing the campus to within minutes drive of the center of San Diego and famous Balboa Park. Twelve miles to the west are the beautiful resort beaches on the Pacific Ocean. An hour's drive to the east are the Laguna Mountains; and Old Mexico may be reached in half an hour.

Many cultural and recreational facilities of interest to graduate students are located within the metropolitan area of San Diego. The San Diego Zoo, the Old Globe Theatre, the Fine Arts Gallery of San Diego, the Timken Gallery, the Museum of Natural History and other museums are located in Balboa Park. Major musical and dramatic productions are scheduled in the Community Center in down-town San Diego. Within easy driving distance to the College are the campuses of three other institutions of higher learning. The San Diego Stadium in Mission Valley and the Sports Arena near Mission Bay provide facilities for major league sports. Opportunities for all forms of athletics, hiking, camping, and aquatic sports are available at all times of the year.

San Diego State with a total enrollment of more than 25,000 students offers undergraduate curricula in more than 50 major fields of study leading to the bachelor of arts, bachelor of science, or bachelor of education degree; graduate curricula in 49 fields leading to the master of arts or master of science degree; the Master of Public Administration degree; and two-year graduate curricula leading to the degrees of Master of Business Administration, Master of City Planning, and the Master of Social Work.

Joint doctoral programs leading to the degree of Doctor of Philosophy have been authorized in the following fields: Chemistry—with the University of California, San Diego; Ecology—with the University of California, Riverside; Genetics—with the University of California, Berkeley.

Programs leading to teaching credentials authorizing teaching in the public schools of California from the kindergarten through community college are available.

ACCREDITATION

San Diego State is a member of the Western College Association and the American Association of Colleges for Teacher Education. It is fully accredited by the Western Association of Schools and Colleges, the National Council for Accreditation of Teacher Education, The California State Board of Education, and is approved by the Veterans Administration for the education and training of veterans. The master's degree programs in Business Administration are accredited by the American Association of Collegiate Schools of Business. The Department of Chemistry is on the approved list of the American Chemical Society, thereby enabling qualified students to receive the Certificate of the American Chemical Society. The Department of Music is a member of the National Association of Schools of Music. The School of Engineering is accredited in the fields of Aerospace, Civil, Electrical and Electronic, and Mechanical Engineering by the Engineer's Council for Professional Development. The Master of Social Work degree is accredited by the Council of Social Work Education.

San Diego State also has memberships in the Western Association of Graduate Schools and the Council of Graduate Schools in the United States.

THE FACULTY

The college faculty consists of over 1,400 members who have received their advanced training in over 100 colleges and universities of the United States or foreign countries. The faculty is distinguished in terms of its formal education, in the wide variety of its practical experience in business, industry, government, and the teaching profession, in its publications, and in its research activity.

THE MALCOLM A. LOVE LIBRARY

A large new central library, named in honor of San Diego State's fourth president, was opened to the students and faculty scholars early in 1971. It provides ideal facilities for study and research. At the heart of the expanding campus the five floor building seats 3,700 readers and can accommodate a million volumes.

Major library services include: general reference, documents library, lower division library, sciences and engineering library, microforms and listening center, education resources center, and the department of special collections and archives. Open and enclosed study carrels, typing rooms, and group study facilities are provided throughout the building.

Library resources are noteworthy. The collections consist of 720,000 volumes including books, bound periodicals and government documents. Additional resources include: 600,000 micro opaque cards, 200,000 microfiches, 18,000 reels of microfilm, 30,000 college catalogues, 55,000 educational resource materials, 23,000 scientific reports, 180,000 archival papers and many other graphic materials such as pamphlets, prints, maps and slides.

The library receives over 9,000 periodical and other serial titles excluding government documents. It is a depository for United States, California, Illinois, New York and Texas government publications and receives United Nations and Organization of American States publications and those of several other international political bodies.

Highly trained reference librarians assist students and faculty in their reading, study, and research. To aid the student in developing his powers of critical, independent thought through wide acquaintance with books, the library has an open shelf arrangement which gives direct access to nearly all books. Inexpensive copying machines are available.

Several research centers on campus have collections not included in the libraries' holdings. Among them are: Public Administration and Urban Studies Laboratory, 50,000 items; Economic Research Center, 32,000 items; Geography and Geology departments, 100,000 maps; Art Department, 70,000 slides; Music Department, 4,000 phonorecords and 60,000 music scores; Anthropology Department, 17,000 items.

RESEARCH

The importance of research in graduate instruction is recognized by the faculty and all graduate programs contain provisions for research experience on the part of the graduate student. Among the facilities for research which may be utilized by students are those provided in organized bureaus, centers, and institutes located on the campus.

The Bureau of Business and Economic Research in the School of Business Administration conducts research in the areas of economics and business with special reference to local and regional problems. The Bureau is a member of the Associated University Bureaus of Business and Economic Research.

The Bureau of Educational Services Research in the School of Education cooperates in community and service studies and disseminates educational research information.

The Bureau of Marine Sciences is organized to facilitate interdisciplinary education and marine science. It is operated under the guidance of the Faculty Marine Sciences Committee.

The Center for Asian Studies, and interdisciplinary organization in the College of Arts and Letters, develops and coordinates the curricula and activities relevant to the Asian Studies Program.

The Center for Economic Education works with the public schools to promote better economic education. The functions include research, development and use of appropriate materials, in-service and pre-service instruction, and service.

The Center for Latin American Studies seeks to encourage teaching and research related to Latin America. It has primary responsibility for the administration of Latin American undergraduate and graduate degrees and the Mexican Summer School programs.

The Center for Public Economics is a facility of the Department of Economics to encourage research by students and faculty in all phases of non-market economic decision-making. It maintains research materials and facilities to assist research and publications in the area of public economics.

The Center for Research in Economic Development in the Department of Economics provides material and aid for research in problems related to less developed countries.

The Center for the Study of Counselor Education is an interdisciplinary organization under the Dean of the School of Education. It conducts programs and renders services related to counselor education and guidance.

The Center for Survey Research encourages non-profit research in the sample survey field. The Center is prepared to undertake surveys requested by government or nongovernment organizations and to do field work on a local, state, or national basis.

The Economics Research Center in the Department of Economics collects research materials and publishes occasional monographs.

The Institute of Labor Economics in the Department of Economics provides materials and direction for research in labor problems, collective bargaining, labor legislation, and social security.

The Institute of Public and Urban Affairs conducts research related to community and governmental problems. It also sponsors institutes and conferences in community and governmental activities. Closely associated with the Institute is the Public Administration Center with a specialized collection of research materials.

The Social Research Center in the Department of Sociology provides physical equipment and space for the planning and processing of sociological research in such areas of investigation as urban growth and development, demographic factors, and social surveys.

CATALOGS AND BULLETINS

The General Catalog, published annually in May, may be obtained from the Aztec Shops Bookstore on the campus. The current price is \$1.00 plus tax and mailing costs. The catalog carries information on admissions, fees and tuition, programs and degrees, courses, scholarships, residence halls, student services and activities, and a faculty directory.

The Graduate Bulletin, published annually in May, is available without cost upon request made to the Graduate Office.

The Summer Sessions Bulletin, issued each April, includes an application form, information on admissions and registration, fees, living accommodations, courses, institutes, workshops, and study tours. It may be obtained free upon request to the Summer Sessions Office.

The Class Schedule and Instructions for Registration is published prior to the opening of each semester and may be purchased at the Aztec Shops Bookstore on the campus. The current price is 35¢ plus an additional charge of 10¢ for mailing.

ACADEMIC YEAR

The academic year at San Diego State, consisting of two semesters of 18 weeks each, begins in September and ends in June. It is defined in the Administrative Code as follows: "The beginning date of the academic year of the college shall begin in the regular fall session, and the ending date shall be the second calendar day following the last day that final examinations are regularly scheduled for the following spring semester." Dates for the current academic year are carried in the Academic Calendar which appears in this bulletin.

LIVING ACCOMMODATIONS

Accommodations for 1,668 single resident students are available in six residence halls on campus.

Each of the buildings is fire-proof and air-conditioned throughout for the comfort of the occupants. Five halls (two for men and three for women) accommodate 209 students each, with sleeping and study facilities on a 2 student per room basis. Another residence hall, which is co-ed, accommodates 623 students with approximately 221 spaces for men. Adequate provision for study hours is made, as well as opportunity for participation in campus activities.

For the year 1971-72, the total charge per semester for room, health service benefits, linens and 19 meals per week served in the college cafeteria, will range in excess of \$530, depending on accommodations. No definite commitment can be made as to exact prices, as these are subject to change. For additional information contact the Housing Manager's Office. A deposit of \$98, which includes a refundable security deposit of \$20 is required.

Rooms are available in the residence halls during the summer school sessions. Meals during these sessions may be purchased on a casual basis from the college cafeteria. A Meal Ticket Program is available during Summer Session I. Rooms are available on a single and double occupancy basis for the first six weeks session, as well as Session II, which is 3 weeks. Weekly rates may be available to students under special circumstance. Space will be available for married students without children.

Additional information concerning reservations for housing and deposits should be obtained from the Director of Housing, San Diego State College, San Diego, California 92115.

PERSONNEL SERVICES CENTER

The facilities of the Personnel Services Center are available to graduate students who may desire assistance in the solution of problems of an educational, occupational, or personal nature. Counseling appointments may be made in the Administration Building or by telephone. Psychological testing is available upon arrangement with a counselor.

STUDENT HEALTH SERVICES

As a part of the program of student personnel services the college provides health services for the protection and maintenance of student health. When school is in regular session these health services, under the direction of a physician administrator, assisted by a full-time staff of physicians, nurses and technologists, are available to students.

A student health and accident insurance policy is available at a very reasonable premium through Associated Students sponsorship and may be purchased at Aztec Shops at registration time each semester.

CAREER PLANNING AND PLACEMENT CENTER

The Career Planning and Placement Center is an integral part of the educational program of the college. Placement is considered as the action phase of both the instructional program and the vocational guidance service at San Diego State. It involves four phases: (1) understanding of self as a candidate, (2) information concerning opportunities available, (3) contacting and interviewing employers, and (4) following through to learn of actual placement acceptance and the amount of success of the candidate.

The Career Planning and Placement Center serves all divisions of the college. Through its professional staff the Placement Center provides placement counseling for the assistance of any student in finding a position which will meet his individual needs and utilize his abilities. Over 1,000 business firms, government agencies, and school districts actively recruit through the Placement Center each year. Many of these concerns are national in scope. On the average, each candidate is interviewed by three to five concerns in the process of finding the position best suited to him. The Early Match System (EMS) is available to all students registered with the Placement Center except those in Education. EMS is a student's silent employer. Each candidate completes a card with twenty selector items on it and the card is then viewed by many firms and agencies. The EMS

card should be completed the semester before graduation. The Center maintains a vocational library of current materials and company brochures from firms and agencies, as well as scholarship brochures, which graduate students may wish to use. A part-time job placement service is provided for those who need financial aid in order to continue their education. Many of the part-time jobs are directly related to areas of student specialization. A diligent effort is made to follow up graduates in order to learn more about their success and to assist in such future job adjustment as may be necessary.

Placement services are available to all students who have completed 12 semester units acceptable on a graduate program at San Diego State. Assistance in finding part-time employment is given to all students who are enrolled for seven or more semester units.

COST OF LIVING

Each student should plan his budget based upon his individual assessment of expenses while attending college. Varying personal circumstances, such as marital status, living accommodations, availability of resources from student self-help or savings, parents or spouse contribution, make it difficult to give specific information on the cost of attending college. At San Diego State it is possible to live adequately and participate moderately in college life and activities on a modest budget. The estimated expenses provided below serve only as a guide to students in planning their college budget.

ESTIMATED EXPENSES FOR THE ACADEMIC YEAR

Typical Cost of Living on Campus

Materials, service, student activity, and student union fee, and facilities fee. (Non-resident tuition for out-of-state students of \$1,110, or Foreign Student tuition of \$600, is in addition to above fee.)	\$157.00
Books and supplies	180.00
Room, board, health services, parking	1,250.00
Personal	450.00
	<hr/>
	\$2,037.00

Typical Cost of Commuting Students

Materials, service, student activity, and student union fee	\$157.00
Books and supplies	180.00
Transportation and parking	350.00
Board and incidentals	400.00
Personal	360.00
	<hr/>
	\$1,627.00

PART THREE

THE GRADUATE DIVISION

The Graduate Division of San Diego State, established in 1957, includes all interdisciplinary graduate degree curricula and all graduate degree curricula offered by departments, schools, and colleges. Under the Vice President for Academic Affairs, the Dean of Graduate Studies is the administrative officer of the Graduate Division and Chairman of the Graduate Council of the Graduate Division. The Graduate Council has responsibility for the development, improvement, supervision and administration of all graduate study leading to graduate degrees at San Diego State.

Graduate study at San Diego State was first offered in 1946 in connection with a graduate program leading to the general secondary teaching credential. The Master of Arts degree was authorized in 1949, the Master of Science degree in 1955. The first two-year graduate program leading to the Master of Social Work was authorized in 1963.

In July, 1965, San Diego State was authorized to offer a graduate program leading to the Doctor of Philosophy degree in Chemistry jointly with the University of California, San Diego. This degree was awarded to the first candidate in June, 1967. A joint doctoral program leading to the degree of Doctor of Philosophy in Genetics with the University of California, Berkeley was authorized in March, 1968. A third joint doctoral program leading to the degree of Doctor of Philosophy in Ecology with the University of California, Riverside was authorized in March, 1969.

As of September, 1970, over 6,100 graduate students were enrolled at San Diego State of which 1,824 had been admitted to the Graduate Division with classified graduate standing.

From June, 1950 to June, 1970, 3,357 Master of Arts degrees, 1,273 Master of Science degrees, 16 Master of Public Administration degrees, 13 Master of Business Administration degrees, 1 Master of City Planning degree, and 365 Master of Social Work degrees have been awarded.

Graduate curricula in the Graduate Division of San Diego State are designed to provide an opportunity for advanced study and research in specialized fields of study in which qualified graduate students may prepare for careers requiring advanced study or may improve their competence in their present professions.

In pursuing these objectives, the graduate student is expected to develop a spirit of unbiased inquiry, the ability to arrive independently at logical conclusions based on careful investigation, and a mastery of the subject matter of his field of study characterized by a high quality of scholarship.

THE GRADUATE COUNCIL

The Graduate Council of the Graduate Division at San Diego State consists of the Vice President for Academic Affairs, the Dean of Graduate Studies, the Associate Dean of Graduate Studies, and members of the faculty appointed by the President upon recommendation of the appropriate dean of a school or college of the institution. For the academic year 1971-1972, the membership of the Graduate Council is as follows:

Donald E. Walker, Ph.D.	(ex officio) Vice President for Academic Affairs
Maurice M. Lemme, Ph.D.	Dean of Graduate Studies
Millard R. Biggs, Ph.D.	Associate Dean of Graduate Studies
Kathleen Fox, Ph.D.	College of Professional Studies
Edgar H. Genovese, Ph.D.	College of Arts and Letters
William A. Hunrichs, Ph.D.	College of Sciences
James D. Kitchen, Ph.D.	College of Professional Studies
Larry L. Leach, Ph.D.	College of Arts and Letters
Chester R. Lodge, Ph.D.	School of Engineering
Jean M. Maxwell, M.S.S.	School of Social Work
Ramon R. Ross, Ed.D.	School of Education
Richard L. Threet, Ph.D.	College of Sciences
Thomas R. Wotruba, Ph.D.	School of Business Administration

DUTIES AND RESPONSIBILITIES

The duties and responsibilities of the Graduate Council include, but are not necessarily limited to, the following activities which are derived from the regulations in the California Administrative Code, Title 5, Education:

1. Establishing criteria for classified graduate standing in the Graduate Division and approval of classified graduate standing for qualified applicants.
2. Establishing criteria for retention and withdrawal of students who have been admitted to graduate curricula.
3. Establishing procedures for the administration of joint doctoral degree programs.
4. Determining the number and nature of examinations required in the Graduate Division, exclusive of departmental examinations.
5. Establishing requirements for advancement to candidacy and acting on requests for such advancement.
6. Considering and acting on all graduate degree programs and petitions of students in the Graduate Division.
7. Adopting rules concerning the form of presentation, acceptability, and disposition of theses and dissertations.
8. Making final recommendation to the faculty for the awarding of all advanced degrees.
9. Making recommendations concerning requests for new graduate level (200-numbered) courses and new advanced degree curriculums.
10. Coordinating and systematizing procedures followed by departments, inter-departmental groups, or schools offering advanced degrees or credentials.
11. Making recommendations to the President, the Vice President for Academic Affairs, committees, the Senate, and the faculty on matters pertaining to graduate study at San Diego State.

AUTHORIZED GRADUATE DEGREES

DOCTOR OF PHILOSOPHY

Chemistry Ecology Genetics

MASTER OF ARTS

American Studies	Linguistics
Anthropology	Mathematics
Art	Music
Asian Studies	Philosophy
Biology	Physical Education
Chemistry	Physical Sciences
Drama	Physics
Economics	Political Science
Education	Psychology
English	Radio and Television
French	Russian
Geography	Social Science
German	Sociology
Health Science	Spanish
History	Speech
Industrial Arts	Speech Pathology and
Latin American Studies	Audiology

MASTER OF SCIENCE

Aerospace Engineering	Geology
Astronomy	Home Economics
Biology	Mass Communications
Business Administration	Mathematics
Chemistry	Mechanical Engineering
Civil Engineering	Microbiology
Counseling	Physics
Criminal Justice	Psychology
Administration	Social Work
Electrical Engineering	Statistics

MASTER OF BUSINESS ADMINISTRATION

MASTER OF CITY PLANNING

MASTER OF PUBLIC ADMINISTRATION

MASTER OF SOCIAL WORK

TEACHING CREDENTIALS

San Diego State College offers credential programs requiring at least one year of postgraduate course work of upper division or graduate level for the following credentials:

- The Standard Teaching Credential with a Specialization in Elementary Teaching
- The Standard Teaching Credential with a Specialization in Secondary Teaching
- The Standard Teaching Credential with a Specialization in Community College Teaching.

In addition, graduate programs are offered for the following credentials:

- The Standard Designated Services Credential with a Specialization in Pupil Personnel Services (including the school psychometrist and school psychologist endorsements)
- The Standard Designated Services Credential with a Specialization in Health
- The Standard Supervision Credential
- The Restricted Credential (Speech and Hearing Specialist)

A student who completes the prescribed programs for the above credentials will be recommended by the college to the State Department of Education for the credential.

For information regarding admission to teacher education and requirements for these credentials, refer to the General Catalog or write directly to the School of Education.

GRADUATE STUDY IN THE SUMMER SESSIONS

In San Diego State's summer sessions a graduate student may earn credit in residence which may be used to satisfy the requirements for an advanced degree or for credentials. If a student plans to offer work taken in a summer session to satisfy the requirements for an advanced degree, he must make early application for: (1) admission to the College with unclassified graduate standing at the Office of Admissions, and (2) admission to the Graduate Division with classified graduate standing at the Graduate Office.

Students planning to attend the College during the Fall Semester must be cleared for admission through the Office of Admissions.

The acceptance of courses taken in the summer sessions by other colleges or by a teacher's local school board for salary schedule purposes is entirely optional with the college or school board concerned.

The summer sessions are organized into three terms: An Intersession of two weeks, during which time two academic units may be earned; Term I of six weeks, during which time six academic units may be earned; and Term II of three weeks, during which time three academic units may be earned. Students who enroll for more units than authorized, including concurrent college courses taken outside this college, will not receive credit for the excess units.

The two-week Intersession usually provides only a limited opportunity for credit in special workshops and institutes.

GRADUATE STUDY FOR FOREIGN STUDENTS

The facilities of San Diego State for graduate study are available to qualified graduates of foreign universities on the same basis and under the same regulations as apply to graduates of colleges and universities in the United States.

Admission procedures for foreign graduate students are stated in the section on Admission of Graduate Students in this bulletin.

VETERANS AND GRADUATE STUDY

San Diego State has been approved by the Veterans Administration and the California State Department of Education to offer graduate study for veterans leading to the master's degree, graduate teaching credentials, and other programs that require graduate training. Veterans who are interested in graduate work should visit the Campus Veterans Office in Room 107 of the Arts and Sciences Building for information and counseling regarding veteran's benefits, prior to the date of registration.

The "graduate load" for a veteran is defined as the approved courses leading to a definite graduate objective, such as the master's degree, a teaching credential, school administration credential, etc.

Graduate veterans are required to carry graduate loads of not less than 9 officially approved units per semester for full subsistence.

GRADUATE TEACHING ASSISTANTSHIPS

Graduate teaching assistantships may be obtained by qualified graduate students in the areas of anthropology, art, astronomy, biology, business administration, chemistry, drama, economics, engineering, English, French, geography, geology, German, health science and safety, home economics, industrial arts, mathematics, microbiology, physical education, physics, political science, psychology, public administration, Russian, sociology, Spanish, speech communication, and telecommunications and film.

Qualifications for appointment include admission to San Diego State with unclassified graduate standing, admission to the Graduate Division with classified graduate standing for the purpose of obtaining a master's degree, and enrollment in not less than 6 units of 100- or 200-numbered courses each semester in the area in which the degree is sought. A graduate teaching assistant must meet the standards of the Graduate Division and failure to do so will result in the cancellation of his appointment.

The combined teaching assignment and course work permitted during one semester is 16 units unless an excess of this amount is authorized by the Dean of Graduate Studies.

Information concerning an appointment as a graduate teaching assistant may be obtained from the head of the department, school, or college in which the applicant wishes to obtain the master's degree.

GRADUATE ASSISTANTSHIPS

Graduate assistantships not involving teaching duties and requiring 20 hours of service per week for full-time appointment are available in several departments and schools. Applicants for graduate assistantships must be admitted to San Diego State with unclassified graduate standing, meet the requirements for admission to the Graduate Division with classified graduate standing, and enroll in and complete at least six units of 100- or 200-numbered courses in the area of their degree interest each semester in which they hold the appointment. A graduate assistant must meet the standards of the Graduate Division and failure to do so will result in the cancellation of his appointment.

Information concerning an appointment as a graduate assistant may be obtained from the head of the department, school, or college in which the applicant wishes to obtain the master's degree.

WAIVER OF NONRESIDENT TUITION FEES

Waiver of nonresident tuition fees for the year 1971-1972 is contingent upon the inclusion of this item in the 1971-1972 budget of the California State Colleges.

The tuition fees for nonresident graduate students may be waived, in whole or in part, on the basis of demonstrated financial need and superior scholastic achievement. To obtain a waiver of tuition fees, a student must: (a) be a nonresident graduate student; (b) supply transcripts of all previous college work; (c) be admitted to San Diego State with unclassified graduate standing; (d) apply for admission to the Graduate Division and be qualified for such admission; (e) take the Graduate Record Examination Aptitude Test; (f) have earned a grade point average above 3.0 (B) in all prior undergraduate and graduate studies; and (g) enroll in at least 10 units of course work applicable on a master's degree program during the semester in which the waiver of fees is to be granted.

Application forms for waivers of nonresident tuition fees and further information may be obtained at the Graduate Office. These forms must be filed in the Graduate Office within the first month after the beginning of the semester in which the tuition fees are to be waived. Foreign students, in addition to filing application forms in the Graduate Office, must file a statement of resources and expenses with the Coordinator of Financial Aids in the Financial Aids Office.

Graduate students whose tuition fees are waived must pay all other fees listed under Fees in this bulletin.

Foreign graduate students should not expect to receive a waiver of the nonresident tuition fees until they have completed at least one semester of full-time graduate study at San Diego State.

GRADUATE SCHOLARSHIPS AND AWARDS

Graduate students interested in the following scholarships and awards may obtain application forms and further information from the Office of the Dean of Activities, unless otherwise indicated.

CALIFORNIA CONGRESS OF PARENTS AND TEACHERS, INC.

Nine Secondary Education Scholarships of \$500 to be granted only to upper division or graduate students planning to teach in the public schools of California. A scholarship recipient must assume an obligation to teach in the public schools of California for one year immediately following graduation, or the award must be repaid in full. Applications available in Scholarship Office.

SAN DIEGO INSTITUTE ON GOVERNMENT SCHOLARSHIP IN PUBLIC ADMINISTRATION

A \$500 scholarship awarded annually to a student enrolled for full-time study toward the Master of Public Administration degree. Make application to Director, Public Administration and Urban Studies.

DOROTHY CRANSTON STOTT

A \$100 per year scholarship to a graduate of San Diego State with a major in English. Selection is made by the Department of English in May of each year.

K. W. STOTT

A \$100 per year scholarship to a graduate of San Diego State with a major in history. Selection is made by the Department of History in May of each year.

STIPENDS FOR SOCIAL WORK

Graduate students admitted to the School of Social Work and to the Graduate Division may be considered for a stipend if they need financial help to undertake the program for the Master of Social Work degree. Eligibility for such stipends differs and it is, therefore, best if the student applying for admission to the School of Social Work indicates on his application whether he is in need of a stipend and the amount required. The School of Social Work will then initiate action necessary for consideration of the request as soon as appropriate.

STATE GRADUATE FELLOWSHIPS

An applicant for a State Graduate Fellowship must: (1) Be a resident of California; (2) Have a baccalaureate degree prior to the time of enrollment in a graduate school; (3) Demonstrate need for monetary assistance; (4) Indicate his interest to teach in higher education in a California college, including community college; (5) Make formal application for a State Fellowship; (6) Plan to enter or be currently enrolled at a graduate school in California; and (7) Comply with all rules and regulations adopted by the Scholarship and Loan Commission. Applications are available in the Scholarship Office during the months of October through January.

FINANCIAL AID

At San Diego State, every effort is made to see that students who wish to attend are not prevented from doing so because of inadequate financial resources. To this end, financial aid in the form of loans and opportunity for part-time employment on or off campus is made available to qualified applicants. In a majority of cases, a student will be offered a package financial aid plan which may include a loan and part-time employment. The programs explained below are administered by the Financial Aid Office, Administration Building, Room 222.

SAN DIEGO STATE FOUNDATION LOAN PROGRAM

Through the generosity of a number of individuals and groups, funds have been established to assist students with emergency loans. Completion of at least one semester of full-time attendance at San Diego State is required before the student is eligible. The student borrower must also be currently in full-time attendance. The amount that may be borrowed, based on college-related need, is normally \$100 or less but may not exceed \$200. Repayment is generally made during the semester; however, graduate students in their last year at the College may select deferred repayment plans. Most loans under this program are free of interest. Applications are available throughout the academic year.

NATIONAL DEFENSE STUDENT LOAN PROGRAM

National Defense Student Loans under the National Defense Education Act of 1958 are available to entering and continuing students who can meet the specific qualifications. The amount that may be borrowed, based on college-related need, may not exceed \$2,500 per year for a graduate student. The interest rate is three percent simple interest per year starting nine months after the student ceases to carry at least one-half the normal full-time work load. The repayment period may be interrupted when a borrower enters the military service, Peace Corps, VISTA, or continues as a student at an institution of higher education. This loan program may provide a borrower with partial cancellation of his loan each year at the rate of ten or fifteen percent, plus interest, for service as a full-time teacher in a public or other non-profit elementary or secondary school or institution of higher education. The loan may also be cancelled at the rate of 12½ percent per year up to a maximum of fifty percent for military service performed after July 1, 1970.

UNITED STUDENT AID FUND PROGRAM

United Student Aid Fund Loans in conjunction with the student's participating home town bank are available to graduate students meeting specific requirements. The amount that may be borrowed, based on college-related need, may not exceed \$1,500 per year for graduate students. Repayment begins nine months from the time the borrower ceases to carry at least one-half the normal full-time academic work load, and may extend between three and ten years depending on the amount borrowed. Interest at the rate of seven percent per year begins when the loan is granted. In most cases (depending on the applicant's family adjusted gross income) this interest cost may be fully subsidized by the federal government while the student is in college and for nine months thereafter.

FEDERALLY INSURED LOAN PROGRAMS

These long-term loans are made by participating banks and credit unions and provide deferred payment until graduation or the termination of higher education. Graduate students may borrow up to \$1,500 per academic year. Interest at the rate of seven percent per year begins when the loan is made. This interest, however, may be subsidized by the federal government (if the applicant's family adjusted gross income is under \$15,000) during the period of full-time attendance and for nine months thereafter. Repayment is over a period of three to ten years depending on the amount borrowed. Application forms are available at the Financial Aid Office. Students from other states may also secure forms from their home town banks.

COLLEGE WORK-STUDY PROGRAM

Students demonstrating financial need may be employed in positions for up to an average of fifteen hours per week when classes are in session and up to a maximum of forty hours per week during vacation periods. The rate of pay for such employment, based upon individual skills, is from \$1.70 to \$2.87 per hour. Job opportunities are available both on campus and with selected community and government agencies in the San Diego area.

MINIMUM REQUIREMENTS FOR ALL APPLICANTS

San Diego State participates in the College Scholarship Service (CSS) of the College Entrance Examination Board. As a participant, the institution subscribes to the principle that the amount of financial aid granted a student should be based upon financial need. The CSS assists San Diego State in determining the student's

need for financial assistance. All students who have resided with their parents for over three weeks during the past year, or who have received over \$600 of financial assistance from their parents, are required to submit a copy of the Parent's Confidential Statement form to CSS, designating San Diego State College as one of the recipients. Other necessary forms and an information brochure may be obtained at the Financial Aid Office.

ELIGIBILITY FOR AID

All the above aid programs, except San Diego State Foundation Loan Program, are available to United States citizens or persons who are in the United States 3 and April 15, 1972 for the 1972-1973 academic year.

APPLYING FOR AID

Students may request assistance for all programs explained above on financial aid forms provided by the college. Application forms are available between January 3 and April 15, 1972 for the 1972-1973 academic year.

INSTITUTE FOR SECONDARY SCHOOL TEACHERS OF MATHEMATICS

Under a grant from the National Science Foundation, San Diego State is offering an Academic Year Institute for six experienced and six intern high school teachers of mathematics during the academic year 1971-1972. All participants will attend an eight-week preliminary session starting June 28, 1971.

To be eligible for admission to the Institute, the applicant must be admitted to San Diego State with unclassified graduate standing; must hold an acceptable bachelor's degree from an accredited institution; and, if planning to earn the master's degree, must be admitted to the Graduate Division. The experienced teacher, selected from the Greater San Diego area, will attend on a half-time commuting basis. Matched one-to-one the intern will replace the experienced teacher half-time in the classroom and attend the Institute half-time.

The curriculum of the Institute is designed to provide the experienced teachers with an opportunity to work toward the Master of Arts degree for teaching service in mathematics and to develop leadership in mathematics education at the secondary level. The intern will be provided an opportunity to work toward the master's degree and to develop meaningful experiences through interaction with successful teachers prior to assuming full-time duties in the classroom.

Stipends, allowances for dependents, travel and books will be provided the interns both during the academic year and for two summers. The experienced teacher will receive a stipend and dependency allowances for two summers; he will continue to receive his regular salary during the academic year. Tuition and fees are paid by the National Science Foundation. Information concerning the Institute may be obtained from Dr. Gerald A. Becker, Mathematics Institute, San Diego State.

ADMISSION OF GRADUATE STUDENTS TO SAN DIEGO STATE

The conditions for admission of graduate students to San Diego State are determined by the Board of Trustees of the California State Colleges and are stated in Section 41000 of the Administrative Code as follows:

- "(a) For admission with graduate standing as an unclassified graduate student, a student shall have completed a four-year college course and hold an acceptable baccalaureate degree from an accredited institution; or shall have completed equivalent academic preparation as determined by the appropriate college authorities; and must satisfactorily meet the professional, personal, scholastic, and other standards for graduate study, including qualifying examinations, as the appropriate college authorities may prescribe.
- "(b) Admission to a state college with graduate standing does not constitute admission to graduate degree curricula."

The Office of Admissions is charged with the responsibility of administering this section of the Administrative Code.

APPLICATION FOR ADMISSION

All new graduate students (including graduates of San Diego State) and all former graduate students who have interrupted their attendance at this college by one or more semesters must comply with the following procedure in seeking admission or readmission to the college:

Dates for Filing Application. Applications for admission to San Diego State are accepted during the initial period indicated below for the respective semester, and continue to be accepted until enrollment quotas are met. Acceptance of applications may be discontinued without notice; it is advisable to file applications as early as possible within the application filing period.

For fall semester, 1971: November 1-30, 1970.

For spring semester, 1972: August 1-31, 1971.

For fall semester, 1972: November 1-30, 1971.

For spring semester, 1973: August 1-31, 1972.

Redirection. When applying for admission to San Diego State, applicants should indicate other California State Colleges which they would be willing to attend, if not admitted to San Diego State. Applications of students who cannot be accommodated at San Diego State will automatically be forwarded to their second choice, and if they cannot be accommodated there, to their third choice, and so on.

Special consideration may be given to qualified applicants who would be faced with an extreme hardship if not admitted. Such persons should consult the Dean of Admissions and Records.

Required Official Forms. The following official forms must be submitted to the Admissions Office:

- (1) Application for admission or readmission, accompanied by a \$20 non-refundable application fee. Make check or money order payable to San Diego State College.
(Fee may be waived for readmission application if student was regularly enrolled in either of the two semesters immediately preceding the semester for which the application is submitted, unless such student was enrolled at another institution in a regular session subsequent to such previous semester.)
- (2) Health history record
- (3) Residency statement

These forms may be obtained from the Admissions Office. Letters from applicants signifying intention to enroll will not be considered as applications for admission. The official forms must be filed.

FILING OF RECORDS

File Official Transcripts. The applicant must file the following official transcripts with the Admissions Office:

- (1) Transcript from high school of graduation or last in attendance (not required of the graduate student who holds a bachelor's degree from an accredited institution, but is required of the student who holds a bachelor's degree from a nonaccredited institution).
- (2) Transcripts from EACH college attended (including extension, correspondence, summer session, or evening courses). Graduate students must file transcripts in duplicate if they plan to enter the master's degree program.

An official transcript is one sent directly between schools. The applicant must request the school or college to send the transcript to the Admissions Office, San Diego State. All records or transcripts received by the college become the property of the college and *will not be released nor will copies be made.*

ADMISSION OF FOREIGN GRADUATE STUDENTS TO SAN DIEGO STATE

A foreign student holding the equivalent of a U.S. baccalaureate degree from a recognized foreign university and wishing to engage in graduate study at San Diego State should write directly to the Dean of Admissions, San Diego State College, San Diego, California, for information on admission requirements and procedures.

Applicants for admission as either graduates or undergraduates whose education has been in a foreign country should file an application for admission, official certificates and detailed transcripts of record from each secondary school and collegiate institution attended several months in advance of the opening of the semester in which the applicant expects to attend. If certificates and transcripts are not in English, they should be accompanied by certified English translations. Credentials will be evaluated in accordance with the general regulations governing admission to San Diego State.

An applicant whose education has been in a language other than English must take the Test of English as a Foreign Language (TOEFL). This test is administered in most foreign countries and test scores must be received by the college before admission to the college can be granted. Information as to the time and place at which this test is given may be obtained by writing to: Educational Testing Service (TOEFL), Princeton, New Jersey 08540, USA. Upon arrival at San Diego State, a further test of English will be given for the purpose of placing students in an English language program commensurate with their linguistic ability in English, and for use by advisers to assist students in planning an appropriate course of study. All students, undergraduates and graduate, are required to take one or more of the following courses, depending upon performance on the placement test: English 1X, English 1Y, English 5. These English courses must be taken in consecutive semesters, with first required course being taken during the student's first semester at San Diego State. Foreign students transferring from another U.S. college may be required to take an English placement test.

A student whose undergraduate instruction has been in a language other than English will generally need at least two years for the completion of the requirements for the master's degree. Since no graduate fellowships or scholarships are available for foreign graduate students at San Diego State, arrangements for financial support necessary for three or four semesters should be made before the student comes to the United States.

Subsequent to admission to the college by the Dean of Admissions as an unclassified graduate student, a student seeking an advanced degree must apply for admission to the Graduate Division with classified graduate standing. Application forms for this purpose may be obtained from the Dean of Graduate Studies. Admission to the college with unclassified graduate standing does not imply admission to a graduate degree program in the Graduate Division.

Arrangements for housing should be completed before the student's arrival on the campus. Detailed information regarding housing may be obtained from the Director of Housing, San Diego State.

Upon arrival at San Diego State, the foreign graduate student should arrange for appointments with the Coordinator of Foreign Student Admissions and the Dean of Graduate Studies.

UNCLASSIFIED GRADUATE STUDENT ENROLLMENT

An unclassified graduate student is not eligible to enroll in 200-numbered courses, except with permission of the instructor and concurrence of the Dean of Graduate Studies. All credit earned by an unclassified graduate student is subject to evaluation as to its acceptance for graduate credit in a master's degree curriculum.

RESIDENCY STATUS CLEARANCE

The laws of the State of California require this institution to determine the residency status of each student enrolling prior to the payment of fees and tuition (if required).

Tuition is free to every student who has been a legal resident of the State of California for a period of one year immediately preceding the residence determination date announced by the Board of Trustees.

Further information concerning a student's residency classification may be obtained from the Residency Status Office.

The residency classification received by any student is subject to review and change. Each student is held responsible for notifying the Residency Status Office of any change in his legal status as a resident of California. A new residency declaration must be made whenever a student interrupts continuous attendance at this college.

ADMISSION OF GRADUATE STUDENTS

All students holding a baccalaureate degree who desire to enroll at San Diego State for postgraduate study must apply for admission to the college through the Office of Admissions. After the required application forms and official records have been filed in the Office of Admissions, the Dean of Admissions and Records may:

- (1) Admit the applicant with *unclassified graduate standing* if he holds an acceptable baccalaureate degree from an accredited institution.
- (2) Admit the applicant as an *undergraduate* student if he does *not* hold an acceptable baccalaureate degree from an accredited institution. Upon satisfactory completion of a minimum of 12 units of undergraduate courses approved by the Dean of Admissions and Records with a grade point average not less than 2.50, the student may receive unclassified graduate standing from the Dean of Admissions and Records.

Since admission with unclassified graduate standing does not constitute admission to graduate degree curricula, a graduate student who wishes to enter a graduate degree curriculum must file an application for admission to the Graduate Division with classified graduate standing as outlined in the section on Admission of Graduate Students to the Graduate Division.

REGISTRATION

Only students who have received a Notice of Admission to the College from the Dean of Admissions and Records will be eligible for registration for the Fall or Spring Semesters. *Students who have allowed a semester or more to lapse in regular attendance at the college will be required to file an application for readmission.* This regulation does not apply to Summer Session registration.

REGISTRATION PRIORITY FOR PAYMENT OF FEES

Each student is assigned a priority number which determines the order in which he registers and pays fees. The schedule for registration and payment of fees is published in the *Class Schedule and Instructions for Registration*, which is available at the student Aztec Shops prior to the registration period for each semester. Priority numbers appear on the Notice of Admission for entering students, and on the permanent identification cards for students continuing their uninterrupted enrollment in the regular semesters.

CHANGES IN CLASS SCHEDULE

A student is responsible for any change in his semester's schedule of classes after the official study list has been filed. Forms for changes in the official study list may be obtained at the Registrar's Office. A fee of \$1 is charged for change in the schedule of classes.

A change in schedule of classes includes the following: withdrawal from a class; adding a class; adding or reducing units to a class for which the student is already registered; changing sections of the same course. Consult calendar for deadline dates for change of schedule.

LIMITATION OF ENROLLMENT

Admission to a state college shall be limited to the number of students for whom facilities and competent instructors are available to provide opportunity for an adequate college education. The Board of Trustees shall determine the number of students for whom there are available facilities and competent instructors at the college.

ADMISSION OF GRADUATE STUDENTS TO THE GRADUATE DIVISION

Students will be admitted to the Graduate Division only after they have been officially admitted to San Diego State by the Dean of Admissions.

The requirements for admission of students to all graduate curricula are determined by the Board of Trustees of the California State Colleges and are stated in Section 41001 of the Administrative Code as follows:

"A student who has been admitted to a state college under Section 41000 (quoted above) may, upon application, be admitted to an authorized graduate degree curriculum of the college as a classified graduate student if he satisfactorily meets the professional, personal, scholastic, and other standards for admission to the graduate curriculum, including qualifying examinations, as the appropriate college authorities may prescribe. Only those applicants who show promise of success and fitness will be admitted to graduate degree curricula, and only those who continue to demonstrate a satisfactory level of scholastic competence and fitness, as determined by the appropriate college authorities, shall be eligible to continue in such curricula. Students whose performance in a graduate degree curriculum is judged to be unsatisfactory by the authorities of the college may be required to withdraw from all graduate degree curricula offered by the college."

At San Diego State, admission to any graduate degree curriculum is accomplished by being formally admitted to the Graduate Division with *classified* graduate standing. A student desiring to begin work for an advanced degree offered by the college must first be admitted to the college with unclassified graduate standing. Subsequent to (or simultaneously with) the filing of his application for admission to the college, he must file application for admission to the Graduate Division with *classified* graduate standing and specify his graduate objective.

Applications for admission to the Graduate Division must be filed in duplicate on forms available at the Graduate Office.

A graduate student desiring to take courses, but who does not wish to earn an advanced degree at San Diego State, is not required to gain admission to the Graduate Division. If a graduate student desires a credential but not an advanced degree, he must meet the admission requirements for the appropriate credential.

Classified Graduate Standing

In order to receive classified graduate standing in the Graduate Division, the applicant must:

- (1) Satisfy the requirements for unclassified graduate standing in the college.
- (2) Have earned not less than a 2.5 grade point average in all undergraduate work taken for the baccalaureate degree.
- (3) Obtain a satisfactory score on the Graduate Record Examination Aptitude Test. Scores made on this examination will be used in the determination of *classified* graduate standing and not as a criterion for advancement to candidacy. (Students holding a master's or higher degree from an institution which is a member of the Council of Graduate Schools are exempted from this requirement.)
- (4) Have completed an undergraduate major appropriate to the field in which he desires to earn an advanced degree.
- (5) Satisfy the special departmental or school requirements as stated in Part Four of this bulletin under Fields of Study and Courses of Instruction.
- (6) Meet the professional, personal, and scholastic standards for graduate study established by the Graduate Council.
- (7) Plan an official master's degree program which must be prepared in accordance with the requirements listed in the Graduate Bulletin current at the date of approval of the program by the Dean or Associate Dean of Graduate Studies.

When a department or school informs the Graduate Office of its intent to recommend the student for classified graduate standing and assigns a graduate

adviser for the student, the student will be notified by the Graduate Office. The student will then arrange a conference with the assigned adviser to plan the official master's degree program. Upon receipt of the final departmental recommendation for classified graduate standing and the official program, the Graduate Office will notify the student that he has attained classified graduate standing.

Admission to the Graduate Division with classified graduate standing does not imply that the student will be advanced to candidacy for a graduate degree. If a student does not receive a satisfactory score on the Graduate Record Examination Aptitude Test, or if he has earned less than a 2.5 grade point average in his undergraduate work, or if he does not meet the minimum requirements of a department or school, he may continue postgraduate work as an unclassified graduate for the purpose of removing deficiencies and otherwise demonstrating ability to succeed in a master's degree curriculum.

If the student succeeds in removing the deficiencies and receives the recommendation of the department or school, he may reapply for classified graduate standing and admission to the Graduate Division.

Advancement to Candidacy

After satisfactory completion of a specified portion of an official program for the master's degree, satisfactory completion of the required examinations, meeting such professional and personal standards as the Graduate Council may prescribe, and after receiving the recommendation of his department or school a student is eligible for advancement to candidacy.

WITHDRAWALS

A graduate student who has been admitted to a graduate degree curriculum but has completed no courses at this college within the last calendar year is considered to have withdrawn from the curriculum. He must file application for readmission to the Graduate Division if he wishes to resume his graduate study. A student who withdraws from a graduate curriculum will be required to comply with regulations and requirements in effect at the time he gains readmission to the Graduate Division.

Any student who was not in attendance during the semester preceding the semester in which he wishes to enroll must apply for readmission to the college.

CONCURRENT MASTER'S DEGREE CREDIT

A senior who is within seven units of completing requirements for the bachelor's degree and whose overall grade point average is 3.0 or above may petition the Graduate Council to take 100-numbered courses listed for concurrent master's degree credit with the remaining requirements for the bachelor's degree. Petitions must be submitted and approved before the end of the term or semester in which the credit is earned. Enrollment in 200-numbered courses is not permitted. The bachelor's degree must be completed at the end of the semester in which the concurrent credit is earned and not more than six units of such credit will be accepted on the minimum unit requirements for the master's degree.

SECOND MASTER'S DEGREE

A graduate student desiring to work for a second master's degree must petition the Graduate Council for permission to enter a curriculum leading to the second master's degree.

REGULATIONS OF THE GRADUATE DIVISION

Graduate students are individually responsible for complying with the procedures, regulations, and deadlines as set forth in the General Catalog of the college and in this bulletin. All questions concerning graduate study at San Diego State should be referred to the Graduate Office.

All graduate students admitted to San Diego State after August, 1971 will be required to follow the procedures and regulations stated in the 1971-1972 editions of the General Catalog and this bulletin. A student who was admitted to a graduate degree curriculum at this college prior to that date and who has been enrolled in one or more courses during each consecutive semester since first enrolling as a graduate student, or whose attendance has not been interrupted by more than two consecutive semesters, will be held responsible for the regulations in effect at the time his official master's degree program was approved.

NUMBERING OF COURSES

Courses numbered 1 through 99 or by letters (A, B, C, etc.) are in the lower division (freshman and sophomore years); those numbered 100 through 199 are in the upper division (junior and senior years); and those numbered 200 through 299 are strictly graduate courses. Courses numbered 300 or over are professional education courses in the graduate credential program.

GRADING SYSTEM

At the end of each semester or summer session in which a student is enrolled, a report of courses taken, showing units and grades earned, is sent to the student. Grades and grade points used in reporting are as follows: Grade of A (outstanding achievement), 4 points; B (commendable), 3 points; C (satisfactory), 2 points; D (passing), 1 point; F (failure), 0 points; Inc (incomplete), counted as units attempted, 0 points; W (withdrawal), not counted in grade point average; WF (withdrawal failing), counted as failing in the grade point average. The mark "Cr" signifying units earned, but not counted in the grade point average. The mark "Cr" is used to report the satisfactory completion of Courses 296, 297, 298, and 299. Letter grades A, B, C, or D, will not be given in these courses.

No course in which a final grade below "C" was earned may be used to satisfy the requirements for an advanced degree.

GRADE POINT AVERAGES

Grade point averages are determined by dividing the total number of grade points earned by the total number of units attempted in courses in which letter grades are assigned. For details see the section of this bulletin under Basic Requirements for the Master's Degree.

INCOMPLETE GRADE

An incomplete grade is counted as units attempted with no grade points and remains on the student's record unless made up. Except for Course 299, Thesis, one calendar year beyond the end of the term when an incomplete is assigned will be allowed for makeup of the incomplete. The student must arrange with the instructor who gave the incomplete for removal of the course deficiencies, upon completion of which a final grade will be assigned. *An incomplete cannot be removed by repeating the course.*

If a student does not make up the incomplete, but instead re-enrolls in the course for credit, he has repeated the course for which he will receive the credit and grade points earned, subject to the regulations for repeating courses. The incomplete will remain on the student's permanent record as units attempted with no grade points earned and cannot thereafter be made up through removal of course deficiencies.

Students desiring to have their names listed on the June Commencement Program must have removed all incomplete grades received in courses listed on official master's degree programs before the deadline date listed in the Academic Calendar of this bulletin.

UNCOMPLETED THESES

A student who registers for Course 299, Thesis, but does not complete the thesis by the end of the semester or summer session in which he registers for it will be required to re-register for the course if he wishes to complete the thesis at a later date. (The grade "Incomplete" will not be assigned to the course if not completed within the semester or term in which the student is registered for the course; the units will not be counted as units attempted; nor will credit be granted for the course under these conditions.)

The student must register in Course 299, Thesis, in any semester or term in which he expects to use the facilities and resources of the college, and must be currently registered in the course when the completed thesis is approved in the Graduate Office. Credit will be assigned to the course at the end of the semester or term in which the thesis is completed.

The second (or subsequent) registration in Course 299, Thesis, is subject to the time limits and procedures followed in the case of the first registration. In re-registering for the course, the student must comply with the deadline dates for registration as published in the Academic Calendar.

(The above regulations apply to all students registering for the first time, or for subsequent re-registrations, in Thesis 299, beginning with the fall semester, 1971.)

WITHDRAWALS

OFFICIAL WITHDRAWAL

The student is held for every course appearing on his official semester study list. Any withdrawal from college or withdrawal from a class must be officially filed at the Registrar's Office; otherwise the student will receive a grade of "F" in the course. Application for withdrawal is made at the Registrar's Office.

Withdrawal Deadline Dates and Penalties. If a student withdraws officially from college or from a class by the end of the third week of classes, the course will not be recorded upon his permanent record. If he withdraws after the third week and not later than the end of the ninth week of classes, either a W (withdrawal passing) or WF (withdrawal failing) will be recorded, depending upon whether he is passing or failing the course on the date of filing the request for withdrawal. (WF is equivalent to a failing grade.) After the ninth week, withdrawal from a class is not permitted. A final grade will be recorded for each class for which the student is enrolled. Withdrawal from college (that is from all courses) will be permitted up to 10 days preceding the final examination schedule; however, the student will receive a W or WF grade in each class, depending upon whether he is passing or failing in the class on the date of filing his request for withdrawal from college.

Improper Registration in Graduate Courses. The registration of undergraduate students in all courses numbered in the 200 and 300 series, and the registration of graduate students who have not met the stated prerequisites for Course 299, Thesis, at the time of registration, will be cancelled.

UNOFFICIAL WITHDRAWAL

Unofficial Withdrawal. A student withdrawing unofficially from class or from college will receive failing grades in all courses from which he withdraws unofficially. An unofficial withdrawal is one in which a student stops attending classes without filing official withdrawal forms with the Registrar within the deadline dates established for withdrawal.

READMISSION

A student who withdraws from college must file application for readmission if a full semester lapses between the time of his withdrawal and return to college. Check calendar for deadline dates on readmission applications.

A \$20 application fee for readmission is required if the applicant was not regularly enrolled in either of the two semesters immediately preceding the semester for which the application is submitted, or if the student was enrolled at another institution subsequent to the last attendance at San Diego State. Make check or money order payable to San Diego State College.

REPEATED COURSES

A graduate student may not repeat courses which have been taken as part of his official master's degree program, except in the case of courses required as prerequisites for that program.

PROBATION AND DISQUALIFICATION FOR SCHOLARSHIP

The regulations governing probation and disqualification of graduate students are determined by the Board of Trustees of the California State Colleges and are stated in Section 41300 of the Administrative Code as follows:

"Probation and disqualification of graduate students are subject to criteria established by each State College; provided, that criteria of probation and disqualification may not be less than those established for undergraduate students.

"A student disqualified for scholarship deficiency may not enroll in any regular session of the college without permission from the appropriate college authority, and may be denied admission to the summer session."

A. Standards for Placing Graduate Students on Scholastic Probation

1. A graduate student will be placed on scholastic probation at the end of a semester if his grade point average on all work attempted at San Diego State subsequent to his admission to the College as an unclassified graduate student falls below 2.5.
2. A graduate student who is on probation during a given semester will be continued on probation at the end of that semester if (a) his overall grade point average, including the semester in question, remains below 2.5 and (b) his grade point average on work taken during the semester is 3.0 or above.

B. Standards for Removing Graduate Students from Scholastic Probation

A graduate student who is on probation during a given semester will be removed from scholastic probation at the end of any semester in which his overall graduate grade point average is 2.5 or higher.

C. Standards for Scholastic Disqualification of Graduate Students

A graduate student may be disqualified from the College for scholastic reasons at the end of any semester during which he is on probation if at the end of that semester (1) his overall grade point average, including the semester in question, is below 2.5 and (2) his grade point average for work taken during that semester is below 3.0.

SCHOLASTIC DISQUALIFICATION FROM THE GRADUATE DIVISION

Any graduate student who has been admitted to a graduate degree curriculum in the Graduate Division and whose performance therein is judged to be unsatisfactory with respect to scholastic or professional standards as judged by the Graduate Council will be required to withdraw from all graduate degree curricula in the Graduate Division and his official status will be changed from classified graduate standing to unclassified graduate standing.

PETITION FOR READMISSION

A graduate student disqualified from the college under the foregoing regulations, may be readmitted to the College by the Board of Admissions. Application for readmission must be made on forms available at the Office of Admissions.

STUDENT DISCIPLINE AND ATTENDANCE

Any student may be expelled, suspended, placed on probation or given a lesser sanction for one or more of the following causes which must be state college related:

- (a) Cheating or plagiarism in connection with an academic program at a state college.
- (b) Forgery, alteration or misuse of state college documents, records, or identification or knowingly furnishing false information to a state college.
- (c) Misrepresentation of oneself or of an organization to be an agent of a state college.

- (d) Obstruction or disruption on or off college property, of the state college educational process, administrative process, or other college function.
- (e) Physical abuse on or off college property of the person or property of any member of the college community or of members of his family or the threat of such physical abuse.
- (f) Theft of, or non-accidental damage to, state college property; or property in the possession of, or owned by, a member of the college community.
- (g) Unauthorized entry into, unauthorized use of, or misuse of state college property.
- (h) On state college property, the sale or knowing possession of dangerous drugs, restricted dangerous drugs, or narcotics as those terms are used in California statutes, except when lawfully prescribed pursuant to medical or dental care, or when lawfully permitted for the purpose of research, instruction or analysis.
- (i) Knowing possession or use of explosives, dangerous chemicals or deadly weapons on state college property or at a state college function without prior authorization of the state college president.
- (j) Engaging in lewd, indecent, or obscene behavior on state college property or at a state college function.
- (k) Abusive behavior directed toward a member of the college community.
- (l) Violation of any order of a state college president, notice of which had been given prior to such violation and during the academic term in which the violation occurs, either by publication in the campus newspaper, or by posting on an official bulletin board designated for this purpose, and which order is not inconsistent with any of the other provisions of this section.
- (m) Soliciting or assisting another to do any act which would subject a student to expulsion, suspension or probation pursuant to this section.

No fees or tuition paid by or for the student for the semester or summer session in which he is suspended or expelled shall be refunded. If the student is readmitted before the close of the semester or summer session in which he is suspended, no additional tuition or fees shall be required of the student on account of his suspension. In the event that a student who has not reached his twenty-first birthday is suspended or expelled, the President shall immediately notify his parent or guardian of the action by registered mail to the last known address, return receipt requested. (Reference: California Administrative Code, Chapter 5, Sections 41301 and 41302.)

STUDENT GRIEVANCES

If a student believes that a professor's treatment of him is grossly unfair or that a professor's behavior is clearly unprofessional, he may bring his complaint to the proper college authorities and official reviewing bodies by following the *Procedures for Handling Student Grievances Against Members of the Faculty*, adopted by the Faculty Senate. A copy of the procedures may be obtained from the Dean of Students.

TRANSCRIPTS OF RECORD

A student may obtain an official transcript of his record by filing an application at the Registrar's Office. A fee of \$1 is charged (first copy free). One week should be allowed for the processing and mailing of the transcript. Transcripts sent from one college to another are considered as official. Transcripts presented by a student to a college are considered to be unofficial and are usually not accepted. Transcripts from other schools or colleges become the property of this college and will not be released nor will copies be made.

AUDITORS

A student who does not wish to take a course for credit may, with the consent of the instructor, enroll as an auditor. An auditor must meet all admissions requirements and pay the same fees required of students taking the course for credit. No change from regular registration to audit, nor from audit to regular registration will be permitted during the semester. An auditor is not held for examinations and does not receive credit or a final grade in the course.

FINAL EXAMINATIONS

No final examination shall be given to individual students before the regularly scheduled time. Any student who is passing in a course and who finds it impossible to take a final examination on the date scheduled must make arrangements with the instructor to have an incomplete grade reported and must take the deferred final examination within the time allowed for making up incomplete grades.

TRANSFER OR EXTENSION COURSE CREDIT

The amount of transfer and extension course credit acceptable on master's degree programs is limited to a total of 6 units for the Master of Arts, the Master of Science, the Master of Business Administration, and the Master of Public Administration degrees; 26 units (including a maximum of 6 units of extension credit) for the Master of City Planning degree; and 32 units (including a maximum of 6 units of extension credit) for the Master of Social Work degree. To be accepted as a part of the requirements for these degrees, all credit earned in other colleges or in extension courses must be approved by the appropriate graduate adviser and the Dean of Graduate Studies. It is the responsibility of the student to determine prior to his enrollment in an extension course whether that course has been approved by the Graduate Council for inclusion on a master's degree program. Credit earned by the correspondence or by examination is not accepted as satisfying degree requirements.

STUDY LIST LIMITS IN THE GRADUATE DIVISION

Section 4060(j) of the Administrative Code defines the term "full-time student" to mean any student whose program while in attendance at a state college averaged twelve or more semester units per semester, or the equivalent.

Graduate students are advised that 12 units of 200-numbered courses or 15 units of a combination of 100- and 200-numbered courses are the recommended maximum programs for any one semester. Graduate students who are employed full time should not attempt to earn more than 6 units per semester.

Graduate students who are employed as graduate teaching assistants at San Diego State are limited to 16 units of combined teaching assignments and course work unless a request for excess load is approved by the Dean of Graduate Studies. Graduate teaching assistants who enroll for more units than authorized will not receive credit on their official degree programs for the excess number of units completed.

OFFICIAL PROGRAMS OF STUDY

Official master's degree programs of study, as signed or revised by the graduate adviser and accepted by the Graduate Council, are binding unless a student withdraws from the Graduate Division. Withdrawal is defined as having taken no courses during a calendar year.

When courses listed on an official master's degree program deviate from the prescribed requirements as stated in the Graduate Bulletin, a statement indicating a justification for approval of the proposed deviation must be submitted to the Dean of Graduate Studies by the department concerned.

It is the student's responsibility to complete the specific courses listed on his official program of study. No changes will be permitted unless approved by the graduate adviser and the Dean of Graduate Studies. No course can be deleted from an official program after the course has been completed. No course completed prior to seven years of the date the program is approved may be listed on the program.

APPLICATION FOR GRADUATION

An application for graduation must be filed in the Graduate Office well in advance of the date of graduation. Refer to the calendar preceding Part I of this Bulletin for deadline dates.

BASIC REQUIREMENTS FOR THE MASTER'S DEGREE

To receive the master's degree at San Diego State, the candidate must have completed the following general requirements of the Graduate Division and the specific requirements listed in the appropriate sections of Part Four of this bulletin, Fields of Study and Courses of Instruction for the Master's Degree:

(A) ADVANCEMENT TO CANDIDACY:

A student who holds *classified graduate* standing in the Graduate Division at San Diego State and who meets its scholastic, professional, and personal standards may be considered for advancement to candidacy for the master's degree provided he has filed an official program of study approved by the appropriate graduate adviser and the Dean of Graduate Studies. For the Master of Arts, the Master of Science, the Master of Business Administration, and the Master of Public Administration degrees, a student may be advanced to candidacy after he has earned at least 12 units listed on his official program with a minimum grade point average of 3.0 (B), or six units of his official program if he is a graduate of San Diego State provided his undergraduate grade point average was at least 2.75; for the Master of City Planning degree, the student must have earned at least 24 units on his official program with a minimum grade point average of 3.0 (B); and for the Master of Social Work degree, the student must have earned at least 24 units on his official graduate program in the School of Social Work with a minimum grade point average of 3.0 (B).

In addition to having *classified graduate* standing and the grade point averages specified above, the student must (1) have maintained the grade point averages listed in Paragraph (G) of this section; (2) have completed all the undergraduate deficiencies and the special requirements of the department or school concerned; (3) have passed the foreign language examination if required; (4) have been recommended for advancement to candidacy by the department or school concerned; and (5) have been approved for advancement by the Graduate Council. Written notification of advancement to candidacy will be sent to the student from the Graduate Office.

(B) EXAMINATIONS:

Prior to or during their first semester in residence, all students desiring an advanced degree must take the Graduate Record Examination Aptitude Test except for students holding a master's or higher degree from an institution which is a member of the Council of Graduate Schools of the United States.

Examinations required in the various subject matter fields of study are listed in the appropriate sections of Part Four, Fields of Study and Courses of Instruction under Specific Requirements for the Master's Degree. (See below for the foreign language examinations and for the comprehensive examination required in lieu of thesis under Plan B.)

(C) FOREIGN LANGUAGE REQUIREMENT:

When a student is required to satisfy this requirement in French, German, Russian, or Spanish, he should make arrangements with the Test Office to take the appropriate Graduate School Foreign Language Test developed by the Educational Testing Service, 1947 Center Street, Berkeley, California 94704. Passing scores on these examinations are established by the Graduate Council.

If the foreign language required is other than the four named above, the student should make arrangements with his graduate adviser and the appropriate language department to take the locally administered examination.

The student is required to pass his foreign language examination before he can be advanced to candidacy.

(D) UNIT REQUIREMENTS:

Credit earned by correspondence or by examination is not acceptable on advanced degree requirements.

Master of Arts, Master of Science, and Master of Public Administration degrees:

Thirty units (36 units for the Master of Science in Counseling degree) of approved 100- or 200-numbered courses earned in graduate standing, at least 24 of which must be completed in residence. At least 15 units must be in 200-numbered courses. Not more than a total of 6 units in approved extension and transfer courses may be used to satisfy the minimum 30 units required for the degree. Courses required to remove undergraduate deficiencies are in addition to the minimum 30 units required for the degree. Not more than a total of 6 units in courses numbered 297 and 298 will be accepted for credit toward the degree.

Master of Business Administration degree:

Between 30 and 60 units (depending upon the student's background) of 200-numbered courses specified by the School of Business Administration at least 24 of which must be completed in residence. Not more than 6 units of approved transfer credit are acceptable for this degree. Credit earned by correspondence is unacceptable. Not more than a total of 6 units in Course 297, Research, and Course 298, Special Study, will be accepted for credit toward the degree.

Master of City Planning

Fifty-six units of approved 100- or 200-numbered courses earned in graduate standing, at least 30 of which must be completed in residence. Courses required to remove undergraduate deficiencies are in addition to the minimum 56 units for the degree. Credit earned by correspondence is unacceptable. Not more than a total of 9 units in courses 297 and 298 will be accepted for credit toward the degree.

Master of Social Work degree:

Fifty-six units of 200-numbered courses specified by the School of Social Work at least 24 of which must be completed in residence. Courses required to remove undergraduate deficiencies are in addition to the minimum 56 units for the degree. Credit earned by correspondence is unacceptable. Not more than a total of 9 units in courses 297A, 297B, and 298 will be accepted for credit toward the degree.

(E) COURSE REQUIREMENTS:

In all master's degree curriculums offered at San Diego State, any course completed more than seven years prior to the date on which all requirements for the degree are completed cannot be used to satisfy the foregoing unit requirements except that the Graduate Council, on the recommendation of the department or school concerned, may extend the time for students who pass a comprehensive examination in the relevant course. A maximum of six units may be validated for recency by examination. With the approval of the appropriate graduate adviser and the Dean of Graduate Studies, a more recently completed course may be substituted for an out-dated one, or substitute course work of equal unit value, not yet completed, may be assigned.

In the event that more than six units of course work become invalidated in the semester following the seven-year deadline, the departmental graduate adviser shall determine which units may be validated by comprehensive examination. Substitute course work shall be assigned for the remaining out-dated courses.

A course completed prior to seven years of the date that the official master's degree program is approved cannot be listed on the program.

A minimum of nine units of courses listed on the official program of study must be enrolled in and completed *after* advancement to candidacy for the Master of Arts, the Master of Science, and the Master of Business Administration degrees. A minimum of 24 units on programs of study for the Master of City Planning, and the Master of Social Work degrees must be enrolled in and completed *after* advancement to candidacy.

Specific courses required in the basic 30, 36, 30-60, or 56 units and the requirements concerning foreign languages are listed in the appropriate sections of Part Four, Fields of Study and Courses of Instruction under Specific Requirements for the Master's Degree.

(F) THESIS:

Plan A, requiring a thesis, may be selected by a student seeking the master's degree provided the department or school concerned approves the listing of Course 299, Thesis, on the official program of study. Three units of "Cr" are granted for the satisfactory completion of the thesis or project following its acceptance by the student's thesis committee, the department or school concerned, and the Graduate Council. Assigning of "Cr" grade for the thesis is the responsibility of the Graduate Office. Registration in Course 299, Thesis, is required; however, students will not be permitted to register for this course until they have received official notification of advancement to candidacy from the Graduate Office and have an officially appointed thesis or project committee. Theses or projects must be completed well in advance of the date of the convocation at which the degree is to be conferred. Refer to the calendar in Part I of this Bulletin for deadline dates.

The student must register in Course 299, Thesis, in any semester or term in which he expects to use the facilities and resources of the college, and must be currently registered in the course when the completed thesis is approved in the Graduate Office. (Refer also to the section on Uncompleted Theses in this bulletin.)

All theses or projects must be typed on special water-marked thesis paper available at the Aztec Shops. Instructions for typing, preparing maps and charts, binding, etc., are available at the Graduate Office. Two of the three required copies of all master's theses or projects are accessioned by the Library of San Diego State and are subject to the regulations of the Library with respect to the circulation or duplication of its cataloged materials.

Students are advised to purchase a copy of the *Manual of Instructions for the Preparation and Submission of the Master's Thesis or Master's Project* at the Aztec Shops.

Plan B, requiring a comprehensive examination in lieu of a thesis, may, with the approval of the department or school concerned, be followed in certain graduate degree curricula as indicated in Part Four of this bulletin. Dates on which comprehensive examinations in lieu of theses are given are determined by the department or school concerned. Results on comprehensive examinations must be reported to the Graduate Office by the department or school. Refer to the calendar in Part I of this Bulletin for deadline dates.

(G) GRADE POINT AVERAGES:

- Grade point averages of at least 3.0 (B) must be maintained on:
1. All programed 100-numbered courses required for the removal of undergraduate deficiencies.
 2. All programed courses including courses accepted for transfer credit and courses taken concurrently with or subsequently to courses accepted for transfer.
 3. All 100-, 200-, or 300-numbered courses taken at San Diego State concurrently with or subsequently to the earliest course listed on the official master's degree program.

No transfer credit may be used to improve the grade point average of units completed at San Diego State.

(H) FINAL APPROVAL:

The student's official program of study as approved by the appropriate graduate adviser and the Graduate Council and all required examinations must be completed in a satisfactory manner before the student will be recommended for the degree by the Graduate Council.

An application for graduation must be filed in the Graduate Office well in advance of the expected date of graduation to provide adequate time for official faculty vote of approval for graduation. Refer to the calendar preceding Part I of this Bulletin for deadline dates.

(I) AWARD OF DEGREES:

The Board of Trustees of the California State Colleges, upon recommendation of the faculty of San Diego State, awards the appropriate diploma or degree to a student who has completed the prescribed course of study.

(J) DIPLOMA:

The appropriate diploma is ordered by the student from the Aztec Shops.

REQUIREMENTS FOR JOINT DOCTORAL DEGREES

CHEMISTRY

The requirements of the joint doctoral program leading to the Doctor of Philosophy degree in Chemistry offered by the University of California, San Diego, and San Diego State College may be found in Part Four of this bulletin under Chemistry.

ECOLOGY

The requirements of the joint doctoral program leading to the Doctor of Philosophy degree in Ecology offered by the University of California, Riverside, and San Diego State College may be found in Part Four of this bulletin under Biology.

GENETICS

The requirements of the joint doctoral program leading to the Doctor of Philosophy degree in Genetics offered by the University of California, Berkeley, and San Diego State College may be found in Part Four of this bulletin under Biology.

PART FOUR

FIELDS OF STUDY AND COURSES OF INSTRUCTION

This section contains the specific requirements for all graduate degrees authorized at San Diego State by the Board of Trustees of the California State Colleges. These specific requirements of departments or schools supplement and are in addition to the basic requirements for the master's degree as stated in Part Three of this bulletin. All official master's degree programs must be prepared in conformity with the basic and specific requirements for the degree in question.

In addition, courses acceptable for credit toward a master's degree are listed under major fields and areas of concentration. Each course is listed by department number, title, and units. Graduate level (200-numbered) courses carry course descriptions. Full descriptions for other courses may be found in the General Catalog. Not all courses are offered every semester or every year. Ordinarily each listed course will be offered not less than once during a two-year period. For courses offered in any given semester, together with the time and place of meeting, consult the semester *Class Schedule*, which is available at the Aztec Shops prior to the date of registration of each semester, or the Summer Session Bulletin which is available prior to the opening of summer session.

San Diego State reserves the right to withdraw any course listed in the class schedule for which the enrollment is not sufficient to warrant the organization of a class.

PREREQUISITES FOR GRADUATE COURSES

Graduate level (200-numbered) courses require, as general prerequisites, graduate standing, and competence in the specified field as indicated by a substantial amount of upper division study in the field or in a closely related field. Unless otherwise specified in the course description, graduate level courses are open to classified graduate students with the permission of the instructor. Unclassified graduate students must obtain the permission of the instructor and the Dean of Graduate Studies before they may enroll in a graduate level course. The enrollment of undergraduate students in 200-numbered courses may be cancelled or, if the course is completed before graduate standing is attained, only undergraduate credit will be earned for the course.

Registration in Course 298, Special Study, must be arranged by the student through the instructor, the major adviser, and the chairman of the department concerned. Forms for this purpose are available in the departmental offices.

Only those students who have been advanced to candidacy and who have an officially appointed thesis committee are permitted to register for Course 299, Thesis. Clearance for registration in this course must be obtained by the student from the Graduate Office.

UNIT OR CREDIT HOUR

In the listing of courses that follow, figures in parentheses indicate the unit value of the course. One unit or credit hour represents 50 minutes of recitation or lecture, together with the required preparation, or three hours of laboratory work or two hours of activities, each week for a semester of 18 weeks.

AMERICAN STUDIES

GENERAL INFORMATION

The Master of Arts degree in American Studies is an interdisciplinary degree administered by the American Studies Committee.

The program is designed to offer systematic training for students desiring an interdisciplinary study of American Civilization. It is intended to meet the needs of students who (1) plan to continue their study in doctoral or other advanced programs in American Studies or in disciplines emphasizing areas of American orientation, (2) plan a career in secondary or junior college teaching, or (3) are seeking a broad background for professional degrees, or business or government service.

ADMISSION TO THE GRADUATE DIVISION

In addition to meeting the requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division, the student must present a Bachelor of Arts degree with a major in American Studies, or a Bachelor of Arts degree which included a minimum of 30 upper division units in American culture. A student whose preparation is deemed insufficient by his graduate adviser or by the American Studies Committee will be required to complete specified courses in addition to the minimum of 30 units required for the degree.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS PROGRAM

In addition to meeting the requirements for classified graduate standing and the basic requirements for the Master of Arts degree, as described in Part Three of this bulletin, the student must complete a minimum of 30 units from courses listed below as acceptable on master's degree programs, of which at least 18 units must be in 200-numbered courses. Required courses are Humanities 180, Study of American Culture, and at least two seminars. The program must include a concentration of at least 12 units in one of the following fields:

- (a) American Literature and Philosophy
- (b) American History
- (c) Social Sciences and Education
- (d) Fine Arts

The remaining units must be chosen from the other fields, with approval of the adviser.

Students will be required to demonstrate a reading knowledge of a relevant foreign language, or complete six units in linguistics, chosen from American English courses (English 180, 182, or 183). These courses are not to be included as a part of the minimum 30-unit program if completed by the student as the option for the fulfillment of the foreign language requirement. A comprehensive examination, administered by the American Studies Committee, in lieu of thesis, is required (Plan B).

All programs will be approved by the American Studies Committee.

COMMITTEE ON AMERICAN STUDIES

R. W. Redding, Chairman
G. F. Drake
R. J. Forrey
Winifred H. Higgins
Karl Keller
F. S. Moramarco

Katherine M. Ragen
W. A. Schultze
R. G. Starr
F. N. Stites
Lowell Tozer

FACULTY

Coordinator of Graduate Programs in American Studies: R. W. Redding
Graduate Advisers: Members of the American Studies Committee, as assigned by the Coordinator.

Faculty members in the departments participating in the degree program are listed in the appropriate sections of this Bulletin.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN AMERICAN STUDIES

UPPER DIVISION COURSES

(A) Literature and Philosophy:

English

- 130. Early American Literature (3)
- 131. The American Renaissance (3)
- 133. American Realism and Naturalism (3)
- 134. Modern American Fiction (3)
- 135. Modern American Poetry (3)
- 136. American Drama (3)
- 182. American English (3)
- 198. Comprehensive Reading and Survey (when content relates to American Studies) (3)

Philosophy

- 164. American Philosophy (3)

(B) History:

History

- 171A-171B. Rise of the American Nation (3-3)
- 172A-172B. Development of Federal Union (3-3)
- 173A-173B. Civil War and Reconstruction: The United States from Jackson to Grant (3-3)
- 174. The Rise of Modern America (3)
- 175A-175B. The United States, 1901-1945 (3-3)
- 175C. The United States in the Nuclear Age (3)
- 177A-177B. Constitutional History in the United States (3-3)
- 178A-178B. The Development of American Capitalism (3-3)
- 179A-179B. Intellectual History of the American People (3-3)
- 180. Selected Studies in History (when content relates to American Studies) (3)
- 181A-181B. Westward Movement (3-3)
- 183A-183B. Black American Civilization (3-3)

(C) Social Science and Education:

Economics

- 111A-111B. Economic History of the United States (3-3)
- 135. Money and Banking (3)
- 138. Urban and Regional Economics (3)
- 173. Economic Resources and Growth (3)
- 174. Economic Concentration and Monopoly Power (3)

Geography

- 121. United States (3)
- 155. Urban Location and Settlement Geography (3)
- 171. Conservation of Natural Resources (3)

Political Science

- 105. American Political Thought (3)
- 116. American National Government (3)
- 123S. Contemporary American Politics (3)
- 139A-139B. American Constitutional Law (3-3)

Sociology

- 124. Social Stratification (3)
- 125. Minority Group Relations (3)
- 157. Urban Sociology (3)

Journalism

- 117. History of Mass Communications (3)
- 121. Current Problems in Mass Communications (3)

(D) Fine Arts:

Art

- 157. History of American Art (3)

APPLICABLE GRADUATE COURSES

(A) Literature and Philosophy:

English

(The English courses listed are acceptable when content relates to American Studies.)

- 233. Seminar in American Literature (3)
- 291. Seminar: A Major Author (3)
- 292. Seminar: A Cultural Period (3)
- 293. Seminar: A Literary Problem (3)
- 298. Special Study (1-3)

(B) American History:

History

- 241. Directed Readings in United States History (3)
- 251. Seminar in United States History (3)
- 298. Special Study (when content relates to American Studies) (1-3)

(C) Social Science and Education:

Geography

(The geography seminars listed are acceptable when content relates to American Studies.)

Refer to graduate course descriptions in the sections of this bulletin under the appropriate departments.

- 220. Seminar in Regional Geography (3)

- 250. Seminar in Systematic Geography (3)

Political Science

- 215. Seminar in American National Government (3)

Education

- 202. Social Foundations (3)

(D) Fine Arts:

Art

- 292A-292B. Seminar in Art History (3-3)

Music

- 252E. Seminar in Music History: American Music (3)

Speech Communication

- 280. Seminar in American Public Address, 1600-1850 (3)
- 281. Seminar in American Public Address, 1850 to Present (3)

ANTHROPOLOGY

GENERAL INFORMATION

The Department of Anthropology, in the College of Arts and Letters, offers graduate study leading to the Master of Arts degree in Anthropology. For graduate study in connection with the Master of Arts degree in Social Science, refer to a section of this bulletin under Social Science. The Master of Arts degree with a major in Anthropology is designed to provide systematic advanced training for (a) students who anticipate additional work leading to the doctoral degree in anthropology, and also for (b) students who plan to terminate their graduate training at the master's level.

Research and special instructional facilities provided by the Department of Anthropology include laboratories for California Archaeology, Ethnology, Linguistics, Physical Anthropology, and World Prehistory. Additional facilities available in the community include the Museum of Man and the San Diego Zoo.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. In addition, students seeking the Master of Arts degree in Anthropology must have completed at least 18 upper division units including the courses in physical anthropology, archaeology, ethnology, and social anthropology which are equivalent to those required for an undergraduate major in anthropology at San Diego State. The student must have an overall 3.0 grade point average (B) in undergraduate courses in anthropology or consent of the Department.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy as described in Part Three of this bulletin. In addition, the students must: (1) satisfactorily complete two of the four core seminars (201, 202, 203, and 204); (2) be recommended for advancement to candidacy by the faculty of the Department of Anthropology; and (3) according to the specific recommendation of the Department of Anthropology, pass either an examination demonstrating reading knowledge of an appropriate foreign language, or complete a sequence of at least one lower division and one upper division course in statistics.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS PROGRAM

In addition to meeting the basic requirements for the Master of Arts degree, Plan A, as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units, of which a minimum of 24 units must be selected from courses listed below as acceptable on master's degree programs. Also, students must complete the core seminars (201, 202, 203, and 204) with an overall B average. Students will be required to complete Anthropology 297, Research, and Anthropology 299, Thesis, after being advanced to candidacy. A final oral examination on the general field of the Thesis must be passed as a requirement for the degree. Only Plan A, requiring the Thesis, is permitted for the Master of Arts degree in Anthropology.

ASSISTANTSHIPS

Graduate teaching assistantships in anthropology are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of Anthropology: Mary E. Shutler, Ph.D.
Coordinator of Graduate Programs in Anthropology: L. L. Leach, Ph.D.

Graduate Advisers:

Archaeology: P. H. Ezell, Lois K. Lippold
 Physical Anthropology: S. L. Rogers, Alexander Sonek, Jr.
 Ethnology: Victor Goldkind, J. A. Young
 Ethnohistory: A. J. Anderson, P. H. Ezell
 Social Anthropology: Victor Goldkind, R. S. Himes
 Ethnolinguistics: P. J. Greenfeld
 Professors: A. J. O. Anderson, Ph.D.; P. H. Ezell, Ph.D.; Victor Goldkind, Ph.D.; S. L. Rogers, Ph.D.
 Associate Professors: Mary E. Shutler, Ph.D.; L. C. Watson, Ph.D.; D. D. Whitney, Ph.D.
 Assistant Professors: P. J. Greenfeld, M.A.; R. S. Himes, M.A.; R. D. Jones, Ph.D.; L. L. Leach, Ph.D.; Lois K. Lippold, M.A.; W. C. Pendleton, Ph.D.; Vivian J. Rohrl, Ph.D.; Alexander Sonek, Jr., Ph.D.; P. S. Staniford, Ph.D.; Barbara Voorhies, Ph.D.; R. V. Wagner, Ph.D.; J. A. Young, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN ANTHROPOLOGY

UPPER DIVISION COURSES

- 101. Human Paleontology (3)
- 115. Primatology (3)
- 122. Language in Culture (3)
- 124. Descriptive Linguistics (3)
- 148. Cultures of Europe (3)
- 149. Kinship and Social Organization (3)
- 150. Ethnological Field Methods (3)
- 151S. Ethnographic Field Research Project (6)
- 153. Primitive Religion (3)
- 155. Peasant Society and Culture (3)
- 156. Culture Change and Processes (3)
- 158. Economic Anthropology (3)
- 159. Cultural Ecology (3)
- 160. Primitive Technology (3)
- 161. The California Indian (3)
- 162. Cultures of South America (3)
- 163. Contemporary Latin American Cultures (3)
- 164. Urban Anthropology (3)
- 165. Culture and Personality (3)
- 168. Evaluative Procedures in Culture and Personality (3)
- 170. Archaeology of North America (3)
- 171. Ethnology of North America (3)
- 172A. Southwestern Prehistory (3)
- 172B. Southwestern Ethnology (3)
- 173. Advanced Archaeological Field Methods (3)
- 174. Prehistoric Archaeology of Europe (3)
- 175. Cultures of Southeast Asia (3)
- 176. Early Near and Middle Eastern Civilizations (3)
- 177. Cultures of East Asia (3)
- 178. Cultures of Oceania (3)
- 179. Applied Anthropology (3)
- 180. Preclassic Cultures of Mesoamerica (3)
- 181. Classic Pre-Columbian Civilizations of Middle America (3)
- 182. Post-Conquest Cultures of Middle America (3)
- 183. Archaic Hellenic, Aegean, and Italian Cultures (3)
- 184. Archaeology of Sub-Saharan Africa (3)
- 185. Cultures of Sub-Saharan Africa (3)
- 186. Cultures of India (3)
- 187. Political Anthropology (3)
- 188A-188B. Archaeological Laboratory Methods (3-3)
- 189. Topics in Arctic Archaeology (3)
- 190. Archaeology of East Asia (3)

GRADUATE COURSES

- 200. Seminar (3)
An intensive study in advanced anthropology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.
- 201. Seminar in Physical Anthropology (3)
Prerequisites: Anthropology 1A or 100A and 12 upper division units in anthropology.
History and theory in physical anthropology stressing the significant literature on such topics as functional anatomy, human paleontology, population genetics, and primatology.

202. Seminar in Archaeology (3)

Prerequisites: Anthropology 1B or 100A and 12 upper division units in anthropology.
History and theory in archaeological data collection, analysis, and interpretation.

203. Seminar in Ethnology (3)

Prerequisites: Anthropology 1C or 100B and 12 upper division units in anthropology.
History and theory in ethnology stressing the significant literature on such topics as cross-cultural comparison, structural-functional analysis and description, personality and culture, and socio-cultural change.

204. Seminar in Linguistics (3)

Prerequisites: Anthropology 120 or 122 and 12 upper division units in anthropology.
History and theory of linguistics stressing the significant literature on such topics as cultural cognition, descriptive linguistics, lexicostatistics, and transformational analysis.

220. Seminar in Regional Anthropology (3)

Prerequisites: 12 units of upper division credit in anthropology.
Study of a major world region such as Africa, the Arctic, East Asia, Europe, Latin America, the Middle East, North America, Oceania, or South Asia. Maximum credit six units applicable on a master's degree.

221. Seminar in Topical Anthropology (3)

Prerequisites: 12 units of upper division credit in anthropology.
Study of a major subdiscipline such as Political Anthropology, Economic Anthropology, Social Anthropology, Psychological Anthropology, Cultural Ecology, Applied Anthropology, Race and Variation, or Environmental Archaeology. Maximum credit six units applicable on a master's degree.

222. Historical Linguistics (3)

Prerequisites: Anthropology 120 and 124.
Principles and techniques of historical linguistics, with concentration on the dynamics of linguistic change, comparative linguistics, and historical reconstruction as applied to non-Indo-European languages.

233. Social Structure (3)

Prerequisite: 12 units of upper division credit in anthropology.
A structural and functional approach to the social organization of a wide range of cultures. An examination of theories and generalizations regarding the stability and integration of a wide variety of human societies.

255. Culture and Society in the Nahua Area (3)

Prerequisites: Anthropology 1B or 1C and 12 units of upper division credit in anthropology.
A course design to permit concentrated studies of the area and those related to it, based on archaeology, aboriginal records, colonial accounts, and modern studies; and to permit various approaches to such studies.

256. Cultures and Societies in Southern Meso-America and Central America (3)

Prerequisites: Anthropology 1B or 1C and 12 units of upper division credit in anthropology.
Concentrated studies of ancient civilization in areas of higher development, based on archaeology, aboriginal records, Colonial accounts, and recent studies; and to permit various approaches to such studies.

257. Classical Nahuatl (3)

Prerequisites: Anthropology 1B or 1C and 12 units of upper division credit in anthropology including Anthropology 157, or 180, or 181; reading knowledge of Spanish recommended.
Nahuatl language study and analysis for translation of 16th-17th century texts, use of ancient and modern grammatical works and vocabularies; reading of manuscripts; relationship of the language to appropriate aspects of Nahua culture.

258. Ethnoscience (3)

Prerequisites: 12 units of upper division credit in anthropology.
Analysis and comparison of native categories, classifications, and bodies of systematic knowledge as demonstrated in preliterate and literate societies.

267. Contemporary Theory in Cultural Anthropology (3)

Prerequisite: 12 units of upper division credit in anthropology.
Contemporary theoretical developments in cultural anthropology: an examination of proposed conceptual frameworks, methodologies, hypotheses, and theories. An analysis of recent literature, with evaluation oriented toward significance for research.

286. South Asian Society (3)

Prerequisite: Anthropology 186 or substantial background in upper division courses in the social sciences dealing with South Asia.
The structure and dynamics of both rural and urban aspects of contemporary South Asian society and culture. Examination of their constituent elements and process, e.g., social organization, religion, acculturation, and rural-urban differences.

297. Research (3)

Prerequisite: Advancement to candidacy.
Independent investigation in the general field of the thesis.

298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study directed toward the preparation of a paper upon a specific problem. Six units maximum credit.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

ART

GENERAL INFORMATION

The Department of Art, in the College of Professional Studies, offers graduate study leading to the Master of Arts degree in Art.

The Art Department is prepared to offer advanced study to graduate students in the fields of painting, sculpture, ceramics, printmaking, graphic communication, and the history of art. In addition to the excellent equipment of the Fine Arts Building at San Diego State, the Fine Arts Gallery, the Putnam Foundation collection in the Timken Gallery, and the Museum of Man in Balboa Park, and the La Jolla Museum of Contemporary Art in La Jolla offer valuable original materials as well as specialized libraries for research. In addition, there are numerous private galleries with a wide variety of offerings.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. In general, the student must have completed an undergraduate major in art with a minimum of 24 upper division units, including a course in the principles of art appreciation and two semesters' work in the general history of art, before he will be permitted to begin work on his graduate program. The student must also be able to show that he is adequately advanced both in drawing and design to carry out projects which measure up to graduate standards. This requirement will be measured by a formal presentation to the Graduate Committee of a portfolio of examples of the candidate's undergraduate work in drawing and in several design fields such as painting, ceramics and sculpture. The range should be great enough to give the committee a knowledge of the candidate's strengths and weaknesses. A statement of the candidate's objectives in the graduate program should accompany this presentation. If it is determined that the student is capable of doing graduate art work, he may be permitted to begin such work even though he has not completed an appropriate undergraduate major in art. Those students whose work is insufficiently advanced for classified graduate standing may enroll for courses, under guidance of the department, in order to meet the standard requirements.

ADVANCEMENT TO CANDIDACY

In addition to meeting the requirements for advancement to candidacy as described in Part Three of this bulletin, all students will be required to pass a comprehensive examination covering the fields of History of Art of Western Civilization, Principles of Art Appreciation, and the techniques and materials of the artist, or to have completed 16 undergraduate units of Art History with an average grade of B or better.

Students working for a Master of Arts degree in Art in the field of art history must complete the following courses or their equivalents before advancement to candidacy:

Anthropology: 1B or 103
Art: 50A, 50B, 52A, 52B, 151, 153, 154, 155A, 155B, 156A, and 157 or 158
Students with an emphasis in art history must also pass a written and oral comprehensive examination in the field of art history and demonstrate a reading knowledge of French or German before advancement to candidacy.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of a minimum of 30 units, which includes at least 24 units in art from courses listed below as acceptable on master's degree programs in art, of which at least 16 units must be in the 200-numbered courses. Art 292A or Art 292B, Art 294A or Art 294B, and Art 299 are required courses. Art 290 is required of those students planning to submit a thesis under Art 299, but not required of those electing a creative project as fulfillment of Art 299.

In connection with the thesis or project, each candidate for the degree must present an exhibition on the campus of representative graduate work including the project (if applicable), and a portfolio of additional graduate work. An oral examination over the field of the thesis or project and related material is required.

THESES AND PROJECTS IN ART

The thesis required for the Master of Arts degree in Art is a written document; the project is an original work of creative art, accompanied by a written report. All theses and written reports accepted in satisfaction of a requirement for the master's degree are catalogued and accessioned in the library; projects remain in the custody of the Department of Art.

ASSISTANTSHIPS

Graduate teaching assistantships in art are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of Art: J. H. Dirks, M.F.A.
 Graduate Advisers: J. D. Swiggett (Coordinator); W. F. Bowne; J. H. Dirks; Winifred H. Higgins
 Credential Adviser: J. D. Swiggett
 Professors: Marybelle S. Bigelow, M.A.; J. H. Dirks, M.F.A.; Arline M. Fisch, M.A.; J. R. Hopkins, M.F.A.; P. A. Lingren, M.A.; Martha W. Longnecker, M.F.A.; J. D. Swiggett, M.F.A.; JoAnn L. Tanzer, Ed.D.; R. D. Wallace, D.Litt.
 Associate Professors: K. L. Baker, M.F.A.; R. J. Baxter, M.F.A.; R. V. Berg, M.A.; D. P. Covington, M.A.; Winifred H. Higgins, Ph.D.; A. W. Miller, M.A.; J. J. Rogers, M.S.
 Assistant Professors: Joan F. Austin, M.F.A.; W. F. Bowne, M.A.; W. A. Childress, M.F.A.; Fay A. Frick, M.A.; Darryl Groover, M.F.A.; S. B. Hodge, M.A.; L. B. Hunter, M.A.; E. R. Moaney, M.F.A.; F. J. Orth, M.F.A.; F. F. Papworth, M.A.; T. A. Peterson, M.A.; Eugene Ray, M.F.A.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN ART

UPPER DIVISION COURSES

- | | |
|--------------------------------------------------------------------|---------------------------------------------------------------------|
| 100A-100B. Advanced Drawing (3-3) | 152B. The Art of Persia and the Islamic World (3) |
| 106A-106B. Printmaking (3-3) | 153. Ancient Art (3) |
| 107. Contemporary Environmental Graphics (3) | 154. Medieval Art (3) |
| 111A-111B. Industrial Design (3-3) | 155A. Renaissance Art (3) |
| 112A-112B. Design and Composition (3-3) | 155B. Baroque and Rococo Art (3) |
| 113A-113B-113C-113D. Advanced Furniture Design (3-3-3-3) | 156A. History of Modern Art (3) |
| 114A. Graphic Communication (3) | 156B. Contemporary Art (3) |
| 114B-114C. Advanced Graphic Communication (3-3) | 157. History of American Art (3) |
| 114D. Problems in Graphic Communication (3) | 158. Art of Primitive Peoples (3) |
| 115A-115B-115C-115D. Life Drawing and Painting (3-3-3-3) | 160. The History of Architecture (3) |
| 116A-116B-116C-116D. Advanced Painting (3-3-3-3) | 161A-161B-161C-161D. Design in Enamels (3-3-3-3) |
| 117A-117B-117C-117D. Advanced Sculpture (3-3-3-3) | 164. History of Costume (3) |
| 118A-118B. Advanced Watercolor Painting (3-3) | 170B. Jewelry and Metalwork (3) |
| 119A-119B-119C. Ceramics (3-3-3) | 170C-170D. Jewelry and Metalwork (3-3) |
| 119D. Advanced Ceramics (3) | 180A-180B-180C-180D. Advanced Weaving (3-3-3-3) |
| 120A-120B. Advanced Design (3-3) | 181. Nonwoven Textile Construction (3) |
| 126A-126B. Intaglio Printmaking (3-3) | 191A-191B. Gallery Exhibition Design (3-3) |
| 127. Advanced Figurative Sculpture (3) | 193A-193B. Drawing and Illustration for Graphic Communication (3-3) |
| 129A-129B. History of Ceramics (3-3) | 195A. Interior Design (3) |
| 135A-135B-135C. History and Theory of Environmental Design (3-3-3) | 195B. Environmental Design (3) |
| 136A-136B. Lithography Printmaking (3-3) | 195C. Economics of Interior Design (3) |
| 151. Art of Middle America (3) | 195D. Advanced Interior Design (3) |
| 152A. The Art of India and Southeast Asia (3) | 196A-196B. Visual Communication Media (3-3) |
| | 197. Exploration in Visual Imagery (3) |

GRADUATE COURSES

- 206A-206B. Creative Printmaking (1-3)
 Advanced creative work in selected printmaking media based upon the analysis of the history and philosophies of printmaking from its inception through contemporary concepts. Maximum credit six units applicable on a master's degree.
214. Creative Graphic Communication (1-3)
 Prerequisite: Art 114D.
 Advanced individual study in graphic design. Maximum credit six units applicable on a master's degree.
- 216A-216B. Creative Painting (1-3)
 Prerequisites: Art 112A, 112B, 116A, and 116B.
 Aesthetic organization of selected visual subject matter in the medium of colors in oils. Maximum credit six units applicable on a master's degree.
- 217A-217B. Creative Sculpture (1-3)
 Prerequisites: Art 117A, 117B, 117C, 117D.
 Aesthetic organization of selected subject matter in the media of sculpture. Maximum credit six units applicable on a master's degree.

219A-219B. Creative Crafts (1-3)

Prerequisites: Six units completed in upper division courses in sculpture or ceramics or printmaking or a combination of these courses. Advanced creative work in selected craft media. Maximum credit six units applicable on a master's degree.

222. Art Education Colloquium (3)

Prerequisite: Minimum of 14 units of upper division art. Historic and current art education philosophies.

270. Seminar in Jewelry and Metalwork (3)

Prerequisite: Art 170A. Problems in the design and execution of works in precious metals. Projects will be determined by the individual student in conference with the instructor. Maximum credit six units applicable on a master's degree.

280. Seminar in Textile Design (3)

Prerequisite: Art 180A. Problems in textile design and technology. Projects will be determined by the individual student in consultation with the instructor. Maximum credit six units applicable on a master's degree.

290. Bibliography (1)

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

291. Seminar in Creative Art. (3)

Independent research in specified areas including the presentation of a paper with its oral defense. Each course may be taken to a maximum of six units. No more than six units of 291 are applicable to a master's degree.

- A. Seminar in Painting
- B. Seminar in Sculpture
- C. Seminar in Printmaking
- D. Seminar in Ceramics
- E. Seminar in Crafts
- F. Seminar in Graphic Communication
- G. Seminar in Environmental Design

292A-292B. Seminar in Art History (3-3)

Prerequisite: Art 50A and 50B. An intensive study of the development of art styles in selected historical periods.

294A-294B. Seminar in the Principles of Design in the Space Arts (3-3)

Prerequisite: A semester course in art appreciation. An intensive study of the activity of creative expression and aesthetic appreciation in the area of visual experience. The aesthetic analysis of original works of art.

295. Creative Environmental Design (1-3)

Prerequisite: Six units of upper division work in interior design, architecture or city planning. Creative work in interior design, architecture and civic design. Maximum credit six units applicable on a master's degree.

298. Special Study (1-3)

Individual study. Six units maximum credit. Prerequisite: Consent of the staff; to be arranged with department chairman and the instructor.

299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy. Preparation of a project or thesis for the master's degree.

ASIAN STUDIES

GENERAL INFORMATION

The Master of Arts degree in Asian Studies with an emphasis on East Asia is an interdisciplinary degree offered by designated faculty members in the Departments of Anthropology, Art, Business Administration, Classical and Oriental Languages, Comparative Literature, Economics, Education, English, Geography, History, Philosophy, Political Science, Religious Studies, and Sociology. It is administered by the Center for Asian Studies through a Graduate Committee consisting of the Director of the Center and representatives from the several departments.

The program is designed to offer systematic advanced training (a) for those planning to enter educational, business, government, or community service involving Asian Studies, and (b) for those in a specific academic discipline who have regional interest in Asian Studies and wish to promote more effective understanding of the culture, societies, people, and social forces at work in the Asian/Pacific world.

ADMISSION TO THE GRADUATE DIVISION

In addition to meeting the requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division, the student must present a Bachelor of Arts degree with a major in Asian Studies or its equivalent, as approved by the Graduate Committee of the Center for Asian Studies. A student whose preparation is deemed inadequate by the Graduate Committee will be required to complete specific courses in addition to the minimum of thirty (30) units required for the degree.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy as described in Part Three of this bulletin. In addition, all students must demonstrate a reading knowledge, at least at the intermediate level, of a relevant foreign language approved by the Graduate Committee of the Center for Asian Studies.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS PROGRAM

In addition to meeting the requirements for classified graduate standing and the basic requirements for the Master of Arts degree, as described in Part Three of this bulletin, the student must complete a minimum of 30 units from courses listed below as acceptable on master's degree programs with not less than 24 units in courses of Asian content, distributed as shown below. A minimum of 18 of the above 24 units shall be in courses of East Asian emphasis.

	200-numbered Courses	Upper Division Courses or 200-numbered Courses
Department A	6 units	6 units
Department B	3 units	3 units
Department C	3 units	3 units
	12 units	12 units

The remaining 6 of the total of 30 units will be elective, selected from the above or other relevant departments, as approved by the Graduate Committee. The total program shall include a minimum of 18 units in 200-numbered courses. The student may elect Plan A (with thesis) or Plan B (comprehensive examination in lieu of thesis) in consultation with the graduate coordinator. All programs will be approved by the Graduate Committee of the Center for Asian Studies.

MEMBERS OF THE CENTER FOR ASIAN STUDIES

Allan W. Anderson
Paochin Chu
Thomas R. Cox
David D. DuFault
Richard R. Gripp
Ronald Himes
G. Ray Jordan
Tae Jin Kahng
Elmer A. Keen
Yoshiko Kobayashi
Martha Longenecker
Murugappa C. Madhavan
Dan D. McLeod
John E. Merrill

Alvin D. Coox, Director

Hans Neyndorff
Rizalino Oades
Sydney H. Rosen
Bryan P. Sharpe
Larry J. Shaw
Ray T. Smith, Jr.
Alexander L. Srbich
Philip S. Staniford
Yoshio Tanaka
Robert D. Wallace
Daniel D. Whitney
Cathy Woo
Charles C. Yahr
John Young

GRADUATE COMMITTEE

Graduate Coordinator: Alvin D. Coox, Director, Center for Asian Studies
Graduate Advisers:

Paochin Chu, History (East Asia)
Tae Jin Kahng, Political Science (East Asia)
Elmer A. Keen, Geography (East Asia)
Daniel D. Whitney, Anthropology (East Asia)
Faculty members in the departments participating in the degree program are listed in the appropriate sections of this Bulletin.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN ASIAN STUDIES

UPPER DIVISION COURSES

Anthropology

175. Cultures of Southeast Asia (3)
177. Cultures of East Asia (3)*
186. Cultures of India (3)

Art

- 152A. The Art of India and Southeast Asia (3)

Comparative Literature

- 152A-152B. World Drama (3-3)†
170. Studies in Modern Oriental Literature (3)†

Economics

102. Comparative Economic Systems (3)†
115. Economic Problems of South and East Asia (3)*

Geography

131. Eastern Asia (3)*
133. Southeastern Asia (3)
134. Southern Asia (3)
150. Political Geography (3)†

* Course always applicable toward the minimum of 18 units of East Asian emphasis required for the master's degree program.
† Acceptable when of relevant content.

APPLICABLE GRADUATE COURSES

Anthropology

200. Seminar (3)†
220. Seminar in Regional Anthropology (3)†
222. Historical Linguistics (3)†
233. Social Structure (3)†
286. South Asian Society (3)

Art

- 206A-206B. Creative Printmaking (1-3)†
292A-292B. Seminar in Art History (3-3)†

Business Administration

- 201A-201B. Business Organization and Management (3-3)†
228. Seminar in International Finance (3)†
252. Marketing Institutions (3)†

Economics

202. Seminar in Comparative Economic Systems (3)*
210. Seminar in Economic History (3)†
292. Seminar in International Economics (3)†
295. Seminar in the Economics of Underdeveloped Countries (3)†

Education

204. Comparative Education (3)†

English

295. Seminar in Linguistics (3)†

All 297 (Research) and 298 (Special Study) courses in named departments, when relevant, are also applicable upon approval by the Graduate Committee. Those students electing Plan A will complete the 299 (Thesis) course in the department selected for the 12-unit concentration (Department A).
Refer to graduate course descriptions in the sections of this bulletin under the appropriate departments.

* Courses always applicable toward the minimum of 18 units of East Asian emphasis required for the master's degree program.
† Acceptable when of relevant content.

Geography

210. History of Geography (3)†
220. Seminar in Regional Geography (3)†
250. Seminar in Systematic Geography (3)†

History

201. Seminar in Historical Method (3)†
243. Directed Reading in Asian History (3)†
253. Seminar in Asian History (3)†
296. Area Studies in History (3)†

Philosophy

235. Seminar in Philosophy of Religion (3)†
236. Seminar in Philosophy of Art (3)†
250. Seminar in East-West Philosophy (3)*

Political Science

270. Seminar in International Relations (3)†
275. Seminar in Theories of International Relations (3)†
280. Seminar in General Comparative Political Systems (3)†
282. Seminar in the Political Systems of the Developing Nations (3)†
284. Seminar in Communist Political Systems (3)†

Sociology

270. Seminar in Population and Demography (3)†
275. Directed Readings in Population and Demography (3)†

ASTRONOMY

GENERAL INFORMATION

The Department of Astronomy, in the College of Sciences, offers graduate study leading to the Master of Science degree in Astronomy.

This degree is designed to augment the student's undergraduate training by a fifth year of more advanced study in the field of astronomy and the associated fields of mathematics and physics. San Diego State has excellent equipment, including a 24-inch reflecting telescope, two 16-inch reflecting telescopes, an 8-inch photographic refractor of long focus, and several other telescopes, ranging from 6- to 12-inch in aperture. Research is centered about photometric work, and research projects are being carried out in the areas of eclipsing binaries. A modern photoelectric photometer with both UBV and narrow band filters is attached to each of the 16-inch and the 24-inch telescopes, and a regular schedule of nightly observations is in operation. Also, an IBM 360-40 electronic computer is available. San Diego State is fortunate in its location in that it is within 100 miles of the Mount Wilson and Palomar Observatories and about 300 miles from the Kitt Peak National Observatory.

An off-campus observing site, approximately 40 miles east of the campus at an elevation of 6,100 feet, has been acquired. A 16-inch Boller and Chivens reflecting telescope with photometer and digital read out is in operation. A 24-inch telescope with photometer, digital readout, and spectograph is also in operation.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division. In addition, the student must have an over-all grade point average of at least 2.75 in the last 60 units of his undergraduate work and must have preparation in astronomy and related sciences substantially equivalent to that required for the bachelor's degree in astronomy at San Diego State. Students transferring to San Diego State must submit two letters of recommendation to the Department of Astronomy.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy as specified in Part Three of this bulletin. In addition, students may be required to take a qualifying examination during their first semester of residence.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must also meet the following departmental requirements in his 30 unit program:

- Complete at least 15 units of 200-numbered courses in astronomy not including 299.
- Complete at least nine units of graduate level or approved upper division courses in astronomy or related fields as approved by his departmental committee.
- If a student elects Plan A, he must enroll in Astronomy 299, Thesis. If a student, with the approval of the department, elects Plan B, he must complete at least three additional units of graduate level or approved upper division courses in astronomy or related fields and pass a final comprehensive examination in lieu of the thesis.
- Complete 6 units of electives selected with approval of the adviser.
- A reading knowledge of scientific French, German, or Russian is highly recommended.

ASSISTANTSHIPS

Graduate teaching assistantships in astronomy are available to a few qualified students. Application blanks and additional information may be secured from the Chairman of the Department of Astronomy.

FACULTY

Chairman, Department of Astronomy: Burt Nelson, Ph.D.
Graduate Adviser: J. D. Schopp, Ph.D.
Professors: Burt Nelson, Ph.D.; J. D. Schopp, Ph.D.
Associate Professors: C. T. Daub, Ph.D.; Arthur Young, Ph.D.
Assistant Professors: R. J. Angione, Ph.D.; F. D. Talbert, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN ASTRONOMY

UPPER DIVISION COURSES

150. Introduction to Variable Stars and Peculiar Stars (3)
170. Astrophysical Spectroscopy (3)
180. Celestial Mechanics (3)
196. Advanced Topics in Astronomy (2-3)

GRADUATE COURSES

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study in advanced astronomy, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.
210. Binary Stars (3)
Prerequisite: Astronomy 112B.
An intensive study of visual, spectroscopic, and eclipsing binaries, including the determination of orbits.
220. Galactic Structures (3)
Prerequisite: Astronomy 112B.
Types, movements and characteristics of stars in the galaxy and a similar study of extragalactic structure.
230. Stellar Interiors (3)
Prerequisite: Astronomy 112B.
Structure of the interior of stars including the details of the reactions by which energy is obtained and the evolution of stars.
240. Interstellar Matter (3)
Prerequisites: Mathematics 119, Astronomy 112B.
Interstellar absorption and polarization, theory of interstellar grains, physics of a low density gas in a dilute radiation field, nebulae, interstellar absorption lines, dynamics of the interstellar medium, and radio observations of the interstellar medium.
250. Stellar Atmospheres (3)
Prerequisites: Astronomy 112A, Physics 101 and 112.
Emission and absorption of radiation, continuous spectra, spectral lines, modal stellar atmosphere calculations, and non-L.T.E. problems.
280. Orbit Theory and Computation (3)
Prerequisite: Astronomy 180.
A study of the derivation of the methods of determining orbits of comets, asteroids, and planets. The computation of an orbit will be required.

297. Research (1-3)

Prerequisite: Classified graduate standing.
Research in one of the fields of astronomy. Maximum credit six units applicable on a master's degree.

298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree

BIOLOGICAL SCIENCES

GENERAL INFORMATION

The Ecology Program Area in Biological Sciences at San Diego State, and the College of Biological and Agricultural Sciences at the University of California, Riverside, offer a joint doctoral program leading to the degree of Doctor of Philosophy in Ecology. The Genetics Group in Biological Sciences at San Diego State and the Genetics Group, University of California, Berkeley, offer a joint doctoral program leading to the degree of Doctor of Philosophy in Genetics. The Departments of Biology, Botany, Microbiology and Zoology, in the College of Sciences, offer graduate study leading to the degrees of Master of Arts in Biology and Master of Science in Biology. For the degree Master of Science in Microbiology see the Microbiology section in this Bulletin.

SECTION I. MASTER'S DEGREE PROGRAMS

The Master of Arts degree is considered to be essentially an academic degree which is planned to serve as a stepping stone for a higher degree, if the student so desires. The Master of Science degree is an applied or technical degree. Concentrations for either of these degrees must be completed in one of the following Program Areas:

Biology: Ecology; Genetics and Developmental Biology; and Physiology

Botany: Botany

Microbiology: Microbiology

Zoology: Invertebrate Zoology; Vertebrate Zoology

A new Life Science building provides increased facilities for graduate study in the biological sciences. Additional facilities available in the community include the San Diego Zoo Hospital, the United States Department of Agriculture, Fish and Game Commission, and the Alvarado Filtration Plant of the City of San Diego. San Diego State is establishing a biological research center on a 3,000 acre area in Temecula, Riverside County, has acquired acreage in the Camp Elliot area, and leases a field station at Camp Minnewawa near Dulzura.

ADMISSION TO THE GRADUATE DIVISION

In addition to the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin, a student must satisfy the following requirements before he will be recommended for classified graduate standing:

- (a) meet the requirements of an undergraduate major in a biological sciences department at San Diego State in which graduate work is contemplated.
- (b) have a grade point average of 2.75 or better on work taken for the baccalaureate degree.
- (c) have a grade point average of 3.0 or better in upper division courses (at least 24 units) in the biological sciences.
- (d) have a score of 1100 or better on the Graduate Record Examination Aptitude Test.
- (e) have a score above the 60th percentile rank on the Graduate Record Examination Advanced Test in Biology. The student should take this test during the last semester in his undergraduate major in biological sciences.
- (f) be considered as capable of graduate work in the biological sciences by two references submitted to the Biology Coordinator of Master's Degree Programs.
- (g) be accepted by a Program Area and be sponsored by a faculty member of the area.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, including the foreign language requirement, as stated in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units of upper division and graduate courses selected with the approval of the graduate adviser, from the biological sciences as listed below or from closely related fields. At least 15 of the units selected must be in 200-numbered courses in the biological sciences, including course 299, Thesis. A reading knowledge of scientific French, German, Russian or Spanish, and a final oral examination on the field of the thesis and its implications in the broad fields of biology are also required.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units of upper division and graduate courses selected with the approval of the graduate adviser from the biological sciences as listed below or from closely related fields. At least 15 of the units selected must be in 200-numbered courses in the biological sciences, including course 299, Thesis. A maximum of six units of the required thirty units may be selected from acceptable courses offered in the School of Education. A final oral examination on the field of the thesis and its implications in the broad fields of biology is also required.

SECTION II. JOINT DOCTORAL PROGRAMS

ECOLOGY

Graduate studies for the joint Doctor of Philosophy degree in Ecology are oriented toward the development of the capacity for independent, imaginative, and self-critical research and toward excellence and enthusiasm in teaching. By common agreement of the two groups in the joint program, much reliance is to be placed on informal instruction through increasing close association of the student with the faculty, and through regular seminars. After developing an adequate background and becoming familiar with the research activities of the faculties, the student will begin research on a problem of his choice, generally in the second year.

UNDERGRADUATE PREPARATION

Normally, a bachelor's degree from an accredited institution with a major in the biological sciences is required for admission to the joint doctoral program in ecology. Courses of study should include: genetics, physiology or biochemistry, and one year of physics. Mathematics through two courses in calculus and two years of a modern foreign language (German, Russian or French) are advised. Other majors in related fields may be considered for admission to the doctoral degree program in ecology.

ADMISSION TO THE GRADUATE DIVISIONS

All applicants for admission to the joint doctoral program in ecology must be admitted both to graduate standing in the Graduate Division, University of California, Riverside, and to classified graduate standing in the Graduate Division, San Diego State. In seeking admission to the two Graduate Divisions, the applicant must pay all fees required by each institution and comply with the admission procedures as stated in the Announcement of the Graduate Division, University of California, Riverside, and the Graduate Division Bulletin, San Diego State.

ADMISSION TO THE PROGRAM

In addition to attaining formal admission to the two Graduate Divisions with the appropriate graduate standing, the student must declare his intention to enter the joint doctoral program by filing an application with the Graduate Adviser. The application must be approved and signed by the Graduate Adviser on each campus and forwarded to the Graduate Deans for formal certification of admission to the joint doctoral program. Entry into the joint doctoral program occurs when the student is formally accepted by the Graduate Deans of each of the two Graduate Divisions.

For new students not already enrolled at either campus, the application to enter the joint doctoral program may be filed simultaneously with the applications for admission to graduate standing on the two campuses.

GRADUATE ADVISERS

After admission to the joint doctoral program in ecology, the student will consult with the Graduate Adviser on the campus where he wishes to conduct the major portion of his work. The Graduate Adviser makes a preliminary assessment of the student's undergraduate preparation in terms of his research interests and helps to plan the beginning student's program and appoints the Advisory Committee of the student.

ADVISORY COMMITTEE

The Advisory Committee, consisting of at least three faculty members representing both cooperating campuses, will develop a study plan in consultation with the student in accordance with the procedures of the ecology groups. Progress of students in the joint doctoral program will be reviewed by the Advisory Committee.

The Advisory Committee will provide a source of consultation for the student and will conduct an evaluating interview near the end of his first year of graduate work.

When the requirements of both ecology groups have been satisfied, and in the judgment of the Advisory Committee, the student is prepared for the Qualifying Examination, the Chairman of the Advisory Committee will notify the Graduate Advisers that the student is ready to proceed and will request the appointment of the Joint Qualifying Committee to conduct the qualifying examination.

FOREIGN LANGUAGE REQUIREMENTS

All candidates for the degree of Doctor of Philosophy in Ecology must demonstrate, before being advanced to candidacy, a reading knowledge of at least one foreign language as determined by the Department of Biology, University of California, Riverside, and described in its current announcement on the program for the degree of Doctor of Philosophy.

RESIDENCY REQUIREMENTS

After formal admission to the joint doctoral program in ecology, the student must spend at least one year in full-time residence on each of the two campuses. The definition of residence must be in accord with the regulations of the University of California, Riverside. At San Diego State, the minimum of one year of full-time residence consists of registration in and completion of at least seven semester units each semester of the required year's residence.

JOINT QUALIFYING COMMITTEE

A Joint Qualifying Committee of five members, composed of at least two faculty members representing each of the cooperating institutions, will be nominated by the Graduate Advisers and appointed for each student by the Graduate Councils jointly. The Joint Qualifying Committee will conduct the qualifying examination, in accordance with established regulations of the University of California, Riverside Graduate Council. The Chairman of the Joint Qualifying Committee must be a member of the ecology group at either campus. The Committee will report the results of the qualifying examination to both Graduate Deans.

ADVANCEMENT TO CANDIDACY

A student who satisfies the foreign language requirement, and passes the qualifying examination, must make application for advancement to candidacy to the Graduate Dean, University of California, Riverside, and after approval by both Graduate Deans, the student will be notified of his advancement to candidacy by the Graduate Dean, University of California, Riverside.

JOINT DISSERTATION COMMITTEE

After a student becomes a candidate, a Joint Dissertation Committee of at least three faculty members will be nominated by the Graduate Advisers and appointed jointly by the Graduate Councils of the cooperating institutions. This committee will be composed of an appropriate number of faculty members from each cooperating institution. The Chairman of the Joint Dissertation Committee must be the dissertation research adviser.

DISSERTATION

A dissertation on a subject chosen by the candidate and approved by his Joint Dissertation Committee bearing on his field of specialization is required of every candidate. Approval of the completed dissertation by the Joint Dissertation Committee implies that an organized investigation, adding something of interest to the body of knowledge and understanding in a particular field, has been carried out and reported in a manner demonstrating the ability of the candidate to prosecute and report independent investigation effectively.

The requirements for completing and filing the dissertation, including the number of copies required, will be decided jointly by the Graduate Deans. Requirements now in force at University of California, Riverside, must be met, including provisions for microfilming, and such others as may be decided by the Graduate Council, San Diego State.

AWARD OF DEGREE

The degree of Doctor of Philosophy in Ecology will be awarded jointly by the Regents of the University of California and the Trustees of the California State Colleges in the names of the University of California, Riverside, and San Diego State College.

PROCEDURES

Other than satisfying the residence requirements, the time required for a student to complete the requirements for the joint doctorate is not expressed in terms of units of credit but will ultimately depend upon the mastery of the subject matter field and the completion of a satisfactory dissertation. A student with an appropriate bachelor's degree will normally spend at least three years, full time, to earn the Doctor of Philosophy degree.

The official records of all students who have formally been admitted to the joint doctoral program in ecology will be maintained by the Registrar, University of California, Riverside, and complete copies of these records will be on file in the Graduate Office, San Diego State. Transcripts of record will be issued by the Registrar, University of California, Riverside, upon request.

A student in residence on one of the two campuses may register for not more than one course at the other institution. Information on fees and other details of registration, particularly in the case of concurrent course work on the two campuses, may be obtained from the Graduate Deans.

All student petitions must be addressed to the two Graduate Deans, jointly.

Courses taken by students who have been formally admitted to the joint doctoral program at either institution, and the grades obtained, will be reported to the Registrars of the two institutions.

A student in residence on one of the campuses will be subject to all rules and regulations governing graduate students in the Graduate Division at the cooperating institutions.

All inquiries concerning the operation of the joint doctoral program in ecology should be directed to the Graduate Dean at either of the cooperating campuses.

STAFF

Faculty members of the staff in ecology of the cooperating institutions who will act as principals in the joint doctoral program in ecology and be available for direction of research and as members of Joint Doctoral Committees are as follows:

University of California, Riverside:

Graduate Adviser: Eric B. Edney

Principals: Lars H. Carpelan, Eric B. Edney, Robert W. Gill, George W. Gillett, Wilbur W. Mayhew, John A. Moore, Eric T. Pengelley, Rodolfo Ruibal, Vaughan H. Shoemaker, Irwin P. Ting, Frank C. Vasek.

San Diego State:

Graduate Adviser: George W. Cox

Principals: Roger E. Carpenter, Mary E. Clark, Boyd D. Collier, Harry N. Coulombe, George W. Cox, Deborah M. Dexter, Thomas A. Ebert, Richard E. Etheridge, David A. Farris, Glenn A. Flittner, Richard F. Ford, William E. Hazen, Albert W. Johnson, Philip C. Miller, William C. Sloan, Mitchell E. Timin, Paul H. Zedler.

GENETICS

Graduate studies for the joint Doctor of Philosophy degree in Genetics should be oriented toward the development of the capacity for independent, imaginative, and self-critical research and toward excellence and enthusiasm in teaching. By common agreement of the two Genetics Groups in the joint program, much reliance is to be placed on informal instruction through increasing close association of the student with the faculty, and through regular seminars. After developing an adequate background, and becoming familiar with the research activities of the faculties, the student will do research on a problem of his choice, generally starting in the second year.

Both San Diego State and the University of California, Berkeley cover a wide range of specialized fields in genetics in which the student may prepare himself for his qualifying examination or, in greater depth, for his research. At San Diego, the specific fields best represented are population genetics, radiation genetics, physiological and developmental genetics, and behavior genetics. At Berkeley, the fields are population genetics, evolution, biochemical and developmental genetics, human genetics, and cytogenetics.

UNDERGRADUATE PREPARATION

An undergraduate major in genetics or its equivalent in biological sciences can be considered as standard preparation, although completion of additional courses in mathematics and statistics, language, physical chemistry and biochemistry, and in biology generally, are helpful and will often reduce the time required for the doctoral program. Other majors in related fields may be considered for admission to the degree program in genetics.

Students in the joint doctoral program in genetics will follow the following schedule:

ADMISSION TO THE GRADUATE DIVISIONS

An applicant for admission to the joint doctoral program must first be admitted to regular graduate standing in the Graduate Division of the University of California, Berkeley, and to classified graduate standing in the Graduate Division of San Diego State. In seeking admission to the two Graduate Divisions, the applicant must pay all fees required by each institution and comply with the admission procedures stated in this bulletin and in the current edition of the General Catalogue, Chapter III, University of California, Berkeley.

ADMISSION TO THE PROGRAM

After a student has been formally admitted to the two Graduate Divisions with appropriate graduate standing, he must declare his intention to enter the joint doctoral program by filing an application with the Graduate Adviser. The application must be approved and signed by the Graduate Adviser on each campus and forwarded to the Graduate Deans for formal certification of admission to the joint doctoral program. Entry occurs when the student is formally accepted by the Graduate Deans of each of the two Graduate Divisions.

For new students not already enrolled at either campus, the application to enter the joint doctoral program should be filed simultaneously with the applications for admission to graduate standing on the two campuses.

GRADUATE ADVISERS

After admission to the joint doctoral degree program, the student will consult with the Graduate Adviser of the Genetics Group on the campus where he wishes to conduct the major portion of his work. The Graduate Adviser makes a preliminary assessment of the student's undergraduate preparation in terms of his research interests and helps to plan the beginning student's program.

EXECUTIVE COMMITTEE

During his first quarter or semester the student will be interviewed by the Executive Committee of the Genetics Group on the campus of residence. The Committee will further assess the student's preparation and capabilities, and will appoint an advisory committee for the student.

ADVISORY COMMITTEE

The Advisory Committee will develop a study plan in consultation with the student in accordance with the procedures of the Genetics Group at the University of California, Berkeley. Reports on the progress of students in the joint doctoral program will be made to and reviewed by the graduate authorities at appropriate intervals.

The Advisory Committee will provide a source of consultation for the student and will conduct an evaluating interview near the end of his first year of graduate work.

When the requirements of both Genetics Groups have been satisfied, and in the judgment of the Advisory Committee the student is prepared for the Qualifying Examination, the Chairman of the Advisory Committee will notify the Graduate Advisers of the two Genetic Groups that the student is ready to proceed and will request the appointment of the Joint Qualifying Committee to conduct the Qualifying Examination. This request must include a report that the foreign language requirement, if recommended by the Advisory Committee, has been satisfied.

FOREIGN LANGUAGE REQUIREMENTS

Candidates for the joint doctoral degree in genetics may be required by their advisory committees to demonstrate a reading knowledge of a foreign language. Foreign language preparation will usually be required only for students whose area of research necessitates extensive reading of foreign language papers.

RESIDENCY REQUIREMENTS

After formal admission to the joint doctoral program in genetics, the student must spend at least one year in full-time residence on each of the two campuses. The definition of residence must be in accord with the regulations of the University of California, Berkeley. At San Diego State, the minimum of one year of full-time residence consists of registration in and completion of at least seven semester units each semester of the required year's residence.

JOINT QUALIFYING COMMITTEE

A Joint Qualifying Committee of five members, composed of an appropriate number of faculty members from each of the cooperating institutions, will be nominated by the Graduate Advisers and appointed for each student by the Graduate Councils jointly. The Joint Qualifying Committee will conduct an oral qualifying examination, consisting of questions in five fields, as described in the program for the Doctor of Philosophy degree in Genetics at University of California, Berkeley. The chairman of the Joint Qualifying Committee must be a member of the Genetics Group at either campus. The committee will report the results of the Qualifying Examination to both Graduate Deans.

ADVANCEMENT TO CANDIDACY

A student who passes the Qualifying Examination must make application to the Graduate Dean, University of California, Berkeley, for advancement to candidacy. Upon payment of the candidacy fee to the University of California, Berkeley, and after approval by the Graduate Deans, the student will be notified of his advancement to candidacy by the Graduate Dean, University of California, Berkeley.

JOINT THESIS COMMITTEE

After a student becomes a candidate, a Joint Thesis Committee of three members is nominated by the Graduate Advisers and appointed jointly by the Graduate Deans. This committee is to be composed of an appropriate number of faculty members from each cooperating institution. One member of the committee is normally drawn from outside the two Genetics Groups. The chairman of the Joint Thesis Committee must be a member of the Genetics Groups at either campus.

THESIS

A thesis on a subject chosen by the candidate and approved by his Joint Thesis Committee bearing on his field of specialization is required of every candidate. Approval of the completed thesis of the Joint Thesis Committee implies that an

organized investigation, adding something of interest to the body of knowledge and understanding in a particular field, has been carried out and reported in a manner demonstrating the ability of the candidate to prosecute and report independent investigation effectively.

The requirements for completing and filing the thesis, including the number of copies required, will be decided jointly by the Graduate Deans. Requirements currently in force at the University of California, Berkeley, must be met, and such others as may be decided by the Graduate Council, San Diego State.

AWARD OF DEGREE

The degree of Doctor of Philosophy in Genetics will be awarded jointly by the Regents of the University of California and the Trustees of the California State Colleges in the names of the University of California, Berkeley, and San Diego State College.

PROCEDURES

Other than satisfying the residence requirements, the time required for a student to complete the requirements for the joint doctorate is not expressed in terms of units of credit but will ultimately depend upon the mastery of the subject matter field and the completion of a satisfactory thesis. A student with an acceptable bachelor's degree will normally spend at least three years, full time, to earn the Doctor of Philosophy degree.

The official records of all students who have formally been admitted to the joint doctoral program will be maintained by the Registrar, University of California, Berkeley, and complete copies of these records will be on file in the Graduate Office, San Diego State. Transcripts of record will be issued by the Registrar, University of California, Berkeley, upon request.

A student in residence on one of the two campuses may register for not more than one course at the other institution. Information on fees and other details of registration may be obtained from the Graduate Deans.

All student petitions must be addressed to the two Graduate Deans, jointly. Courses taken by students who have been formally admitted to the joint doctoral program at either institution, and the grades obtained, will be reported to the Registrar of the other institution.

A student in residence on one of the campuses will be subject to all rules and regulations governing graduate students in the Graduate Division at that institution unless they are contrary to the provisions of this joint doctoral program.

All inquiries concerning the operation of the joint doctoral program should be directed to the Graduate Dean at either of the two campuses.

STAFF

The following faculty members of the Genetics Groups of the cooperating institutions will act as principals in the joint doctoral program, being available for direction of research and as members of Joint Doctoral Committees.

University of California, Berkeley:

Graduate Advisers: James Fristrom, Alec D. Keith
Principals: Spencer W. Brown, Donald R. Cameron, Seymour Fogel, James Fristrom, Alec D. Keith, I. Michael Lerner, William J. Libby, Jr., Patricia St. Lawrence, Philip Spieth.

San Diego State:

Graduate Adviser: William P. Diehl
Principals: Frank T. Awbrey, Adela S. Baer, Wayne F. Daugherty, Jr., Craig H. Davis, William P. Diehl, David G. Futch, Albert W. Johnson, Frank J. Ratty, Robert R. Rhinehart, Kenneth M. Taylor, William M. Thwaites, Hale L. Wedberg.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in biology are available to a limited number of qualified students. Application blanks and additional information may be secured from the Coordinator of the Biology Graduate Program.

FACULTY

Chairman, Department of Biology: W. E. Hazen, Ph.D.
 Chairman, Department of Botany: H. L. Wedberg, Ph.D.
 Chairman, Department of Microbiology: W. L. Baxter, Ph.D.
 Chairman, Department of Zoology: R. E. Etheridge, Ph.D.
 Graduate Coordinator, Ecology: G. W. Cox, Ph.D.
 Graduate Coordinator, Genetics: Adela S. Baer, Ph.D.
 Graduate Coordinator, Microbiology: Beatrice L. Kelly
 Coordinator, Master's Degree Programs: William P. Diehl, Ph.D.
 Graduate Departmental Advisers for General Counseling:

Biology:

Ecology: P. H. Zedler

Genetics and Developmental Biology: Richard F. Ford

Physiology: Mary E. Clark

Botany: J. V. Alexander

Zoology:

Invertebrate Zoology: Deborah M. Dexter

Vertebrate Zoology: R. E. Carpenter

Credential Adviser: G. P. Sanders

Professors: Adela S. Baer, Ph.D.; W. L. Baxter, Ph.D.; K. K. Bohnsack, Ph.D.;
 C. L. Brandt, Ph.D.; R. E. Carpenter, Ph.D.; G. W. Cox, Ph.D.; J. E. Crouch,
 Ph.D.; R. E. Etheridge, Ph.D.; D. A. Farris, Ph.D.; A. H. Gallup, Ph.D.; R. D.
 Harwood, Ph.D.; W. E. Hazen, Ph.D.; E. W. Huffman, Ph.D.; Don Hunsaker,
 Ph.D.; A. W. Johnson, Ph.D.; William McBlair, Ph.D.; H. B. Moore, Ph.D.;
 J. W. Neel, Ph.D.; A. C. Olson, Ph.D.; F. J. Ratty, Ph.D.; R. R. Rinehart, Ph.D.;
 D. C. Shepard, Ph.D.; W. C. Sloan, Ph.D.; K. M. Taylor, Ph.D.; H. A. Walch,
 Ph.D.; H. L. Wedberg, Ph.D.; W. J. Wilson, Ph.D.

Associate Professors: J. V. Alexander, Ph.D.; F. T. Awbrey, Ph.D.; J. A. Brookes,
 Ph.D.; Mary E. Clark, Ph.D.; T. J. Cohn, Ph.D.; B. D. Collier, Ph.D.; Gerald
 Collier, M.A.; W. F. Daugherty, Ph.D.; Deborah M. Dexter, Ph.D.; R. F. Ford,
 Ph.D.; B. L. Kelly, Ph.D.; Norman McLean, Jr., Ph.D.; C. E. Norland, M.S.;
 J. A. Parsons, Ph.D.; L. N. Phelps, Ph.D.; H. H. Plymale, D.V.M.; D. A. Preston,
 Ph.D.; H. C. Schapiro, Ph.D.; W. M. Thwaites, Ph.D.

Assistant Professors: E. A. Anderes, Ph.D.; N. M. Carmichael, Ph.D.; R. H. Catlett,
 Ph.D.; Lo-Chai Chen, Ph.D.; Harry Coulombe, Ph.D.; C. H. Davis, Ph.D.; W. P.
 Diehl, Ph.D.; T. A. Ebert, Ph.D.; D. G. Futch, Ph.D.; S. H. Hurlbert, Ph.D.;
 Alice C. T. Jokela, Ph.D.; Skaidrite Kleinbergs, Ph.D.; C. O. Krekorian, Ph.D.;
 J. A. Lillegraven, Ph.D.; H. R. Melchior, M.S.; P. C. Miller, Ph.D.; P. J. Paolini,
 Ph.D.; D. J. Raidt, Ph.D.; D. L. Rayle, Ph.D.; J. F. Steenbergen, Ph.D.; M. E.
 Timin, Ph.D.; P. H. Zedler, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS

UPPER DIVISION COURSES

- | <i>Biology</i> | <i>Microbiology</i> |
|-------------------------------------------------------|---------------------------------------------------------------|
| 101. Cellular Physiology (4) | 101. General Microbiology (4) |
| 103. General Cytology (4) | 102. Pathogenic Bacteriology (4) |
| 109. Regional Field Studies in
Biology (1-3) | 103. Fundamentals of Immunology
and Serology (4) |
| 110. Ecology (4) | 104. Medical Mycology (4) |
| 111. Aquatic Biology (4) | 105. Microbial Physiology (4) |
| 112. Fisheries Biology (3) | 107. General Virology (2) |
| 113. Biological Oceanography (4) | 108. General Virology Labo-
ratory (2) |
| 114. Advanced Ecology (3) | 109. Hematology (4) |
| 121. Systems Ecology (5) | 111A-111B. Epidemiology (2-2) |
| 122. Environmental Measurement (3) | 114. Bacterial and Viral Genetics (4) |
| 123. Simulation of Ecological
Systems (4) | 115. Advanced General Micro-
biology (4) |
| 142A-142B. Comparative Animal
Physiology (4-4) | 116. Marine Microbiology (4) |
| 148. Photophysiology (3) | 120. Animal Viruses (4) |
| 148L. Photophysiology Labo-
ratory (1) | 130. Experimental Immunology (4) |
| 150. Radiation Biology (3) | 140. History of Microbiology (2) |
| 150L. Radiation Biology
Laboratory (1) | 180. Electron Microscopy (4) |
| 151. Radioisotope Techniques in
Biology (3) | <i>Zoology</i> |
| 155. Genetics (4) | 102. Invertebrate Embryology (3) |
| 156. Developmental Biology (4) | 103. Embryology (4) |
| 157. Cytogenetics (4) | 106. Comparative Anatomy of the
Vertebrates (4) |
| 158. Human Genetics (4) | 108. Histology (4) |
| 160. Experimental Evolution (3) | 112. Marine Invertebrates Zoology (4) |
| 161. History of Biology (3) | 115. Ichthyology (4) |
| 162. Source Material in the History of
Biology (3) | 116. Herpetology (4) |
| 163. Microbial Genetics (4) | 117. Ornithology (4) |
| 169. Population Genetics (3) | 118. Mammalogy (4) |
| 171. Mutagenesis (3) | 121. General Entomology (4) |
| 175. Statistical Methods in Biology (3) | 122. Special Topics in Entomology (3) |
| 181. Advanced Cellular
Physiology (3) | 123. Immature Insects (3) |
| | 124. Insect Ecology (4) |
| | 125. Economic Entomology (4) |
| | 126. Medical Entomology (3) |
| | 127. Principles of Pest Management
(3) |
| | 128. Parasitology (4) |
| | 130. Advanced Invertebrate Zoology
(3) |
| | 140. Physiological Zoology (4) |
| | 145A-145B. Experimental Animal
Surgery (2-2) |
| | 155. Principles of Taxonomy, Systematics
and Phylogeny (4) |
| | 160. Vertebrate Paleontology (4) |
| | 170. Animal Behavior (4) |
| | 172. Neurobehavior (4) |

GRADUATE COURSES

Biology

200. Seminar (2 or 3)

Prerequisite: Consent of instructor.

An intensive study in advanced biology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

210. Seminar in Cellular Physiology (2)

Prerequisites: Biology 101 and consent of instructor.

Maximum credit four units applicable on a master's degree.

220. Seminar in Developmental Biology (2)
Prerequisite: Biology 156.
May be repeated with new content. Maximum credit four units applicable on a master's degree.
221. Developmental Genetics (3)
Prerequisites: Biology 101 and Biology 156.
Regulation of genetic information in developing systems.
222. Morphogenesis (3)
Prerequisites: Biology 101 and Biology 156.
Regulation of pattern formation in developing systems; cell migration, cell division, cell death, dependent differentiation.
230. Speciation (3)
Prerequisites: Biology 110 and 155; or Biology 160.
Concepts and principles of the origin of species.
231. Seminar in Ethology and Comparative Psychology (3)
(Same course as Psychology 231)
Prerequisite: Biology 110 or Psychology 114.
Current problems in ethology and comparative animal behavior. Maximum credit six units applicable on a master's degree.
240. Seminar in Terrestrial Ecology (2)
Prerequisite: Biology 110.
Ecological concepts as applied to the terrestrial environment. May be repeated with new content. Maximum credit four units applicable on a master's degree.
241. Seminar in Aquatic Ecology (2)
Prerequisite: Biology 110.
Ecological concepts as applied to the fresh water and marine environment. May be repeated with new content. Maximum credit four units applicable on a master's degree.
242. Population and Community Ecology (3)
Two lectures and three hours of laboratory.
Prerequisite: Biology 110.
Formulation, analysis, and experimental testing of the theories of the structure and dynamics of ecological systems at the population and community level.
243. Physiological Ecology (3)
Two lectures and three hours of laboratory.
Prerequisites: Biology 110 and consent of instructor.
The comparative physiological characteristics of natural plant and animal populations in relation to their habitats and environments.
244. Physical Aspects of Ecology (3)
Prerequisite: Biology 110.
Two lectures and three hours of laboratory.
Analysis and measurement of physical factors of the environment and of the processes by which energy and matter are exchanged between organisms and the environment; the significance of the physical environment in ecological processes.
245. Aquatic Ecology (3)
Prerequisites: Biology 110 and consent of instructor.
Two lectures and three hours of laboratory.
Ecological concepts as applied to benthic and pelagic population and communities in fresh water and marine environments.
246. Behavioral Ecology (3)
Two lectures and three hours of laboratory.
Prerequisites: Biology 110 and consent of instructor.
Recommended: Zoology 170 or Psychology 141.
Behavioral mechanisms relating animals to their physical and biotic environment.

250. Biogeography (3)

Prerequisite: Biology 110 or 160.
Concepts and principles of the distributional history of plant and animal groups, and the origins and dispersal of modern faunas and floras.

260. Seminar in General Physiology (2)

Prerequisite: Biology 101 or Botany 107.
May be repeated with new content. Maximum credit four units applicable on a master's degree.

261. Seminar in Environmental Radiation (2)

Prerequisites: Biology 150 and Biology 151.
The sources, characteristics, distribution, measurement, and fate of radioactive contaminants in the biosphere and interactions with the biota. Maximum credit four units applicable on a master's degree.

262. Cytoplasmic Inheritance (3)

Prerequisites: Biology 101, 155, and consent of instructor.
Literature and techniques related to research in non-Mendelian genetics.

263. Seminar in Comparative Physiology (2)

Prerequisites: Biology 142A or 142B and consent of instructor.
Comparative aspects of function at the molecular through organismal levels. Maximum credit four units applicable on a master's degree.

264. Methods in Physiology (2)

Six hours of laboratory.
Prerequisite: Biology 101.
Current methods employed on physiological measurements. Maximum credit four units applicable on a master's degree.

265. Molecular Biophysics (3)

Prerequisites: Biology 101, Mathematics 21 and 22.
The description and analysis of biological processes and systems in terms of the properties of molecules and of basic principles.

270. Seminar in Genetics (2)

Prerequisite: Biology 155.
Maximum credit four units applicable on a master's degree.

276. Physiological Genetics (3)

Prerequisites: Biology 155 or 158; Chemistry 12.
Recommended: Chemistry 115A-115B.
Biochemical aspects of genetics of microbial and human systems.

290. Bibliography (1)

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

291. Investigation and Report (3)

Analysis and research techniques in biology.

297. Research (1-3)

Research in one of the fields of biology. Maximum credit six units applicable on a master's degree.

298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.

299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

Botany

200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study in advanced botany, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.
201. Seminar in Phycology (2)
Prerequisite: Botany 101.
Recent developments in phycology. Maximum credit four units applicable on a master's degree.
202. Seminar in Mycology (2)
Prerequisite: Botany 102.
Current problems in the taxonomy, morphology or physiology of the fungi. Maximum credit four units applicable on a master's degree.
203. Seminar in Vascular Plants (2)
Prerequisite: Botany 103.
Problems in the evolution of the vascular plants. Maximum credit four units applicable on a master's degree.
214. Seminar in Systematic Botany (2)
Prerequisite: Botany 114.
Current problems in the systematics of vascular plants. Maximum credit four units applicable on a master's degree.
226. Seminar in Plant Pathology (2)
Prerequisite: Botany 126.
Advanced topics in the biology of plant pathogens. Maximum credit four units applicable on a master's degree.
230. Seminar in Plant Physiology (2)
Prerequisite: Botany 130.
Current investigations in one of the areas in plant physiology. Maximum credit four units applicable on a master's degree.
240. Seminar in Plant Anatomy (2)
Prerequisite: Botany 140.
Study of recent advances in the anatomy of vascular plants. Maximum credit four units applicable on a master's degree.
272. Seminar in Palynology (2)
Prerequisite: Botany 172.
Study of recent advances in palynology. Maximum credit four units applicable on a master's degree.
297. Research (1-3)
Research in one of the fields of botany.
Maximum credit six units applicable on a master's degree.
298. Special Study (1-3)
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.
299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.
200. Seminar (2 or 3)
Prerequisite: Consent of instructor.
An intensive study in advanced microbiology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

Microbiology

205. Seminar in Microbial Physiology (2)
Prerequisite: Microbiology 105.
May be repeated with new content. Maximum credit four units applicable on a master's degree.
210. Seminar in Pathogenic Bacteriology (2)
Prerequisite: Microbiology 102.
May be repeated with new content. Maximum credit four units applicable on a master's degree.
215. Seminar in Bacterial and Viral Genetics (2)
Prerequisite: Microbiology 114.
May be repeated with new content. Maximum credit four units applicable on a master's degree.
220. Seminar in Industrial and Agricultural Microbiology (3)
Prerequisite: Microbiology 101 or consent of instructor.
May be repeated with new content. Maximum credit four units applicable on a master's degree.
230. Seminar in Medical Mycology (2)
Prerequisite: Microbiology 104 or consent of instructor.
May be repeated with new content. Maximum credit four units applicable on a master's degree.
240. Seminar in General Microbiology (2)
Prerequisites: Microbiology 101 and 105, or consent of instructor.
May be repeated with new content. Maximum credit four units applicable on a master's degree.
245. Seminar in Aquatic Microbiology (2)
Prerequisite: Microbiology 116.
Maximum credit four units applicable on a master's degree.
250. Seminar in Virology (2)
Prerequisite: Microbiology 107 or consent of instructor.
May be repeated with new content. Maximum credit four units applicable on a master's degree.
260. Seminar in Immunology and Serology (2)
Prerequisite: Microbiology 103 or consent of instructor.
May be repeated with new content. Maximum credit four units applicable on a master's degree.
270. Biology of Animal Pathogenic Fungi (4)
Three lectures and three hours of laboratory.
Prerequisites: Microbiology 103, 104 and 105; Botany 102; and Chemistry 115B. Biology 110 and 155 recommended.
Physiological, cytological, genetical, and ecological factors relating to pathogenesis of the fungi-causing diseases in man and other animals.
271. Bacterial Viruses (Bacteriophages) (4)
Two lectures and six hours of laboratory.
Prerequisites: Microbiology 105, 107; Biology 155; Chemistry 115B.
Effects of temperate and virulent bacteriophages on their hosts, including host-induced modification, lysogenic conversion, and transduction.
272. Advanced Pathogenic Bacteriology (4)
Three lectures and three hours of laboratory.
Prerequisites: Microbiology 102 and 105; Chemistry 114B or 115B. Recommended: Biology 101, 110.
Biological and chemical nature of disease-producing bacteria. Application of experimental information to diagnostic laboratory procedures.

290. Bibliography (1)
Use of basic reference books, journals, pertinent bibliographies preparatory to the writing of a master's thesis.

291. Research Techniques (3)
Prerequisites: Major in a biological science and two upper division courses in the area of microbiology or consent of instructor.
Analysis of research procedures in microbiology.

297. Research (1-3)
Research in one of the fields of microbiology.
Maximum credit six units applicable on a master's degree.

298. Special Study (1-3)
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

Zoology

200. Seminar (2 or 3)
An intensive study in advanced zoology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

201. Seminar in Marine Zoology (2)
Prerequisite: Biology 110.
Recent developments in marine zoology. Maximum credit four units applicable on a master's degree.

206. Seminar in Vertebrate Morphology (2)
Prerequisite: Biology 106.
Current problems in the descriptive, functional and evolutionary anatomy of vertebrates. Maximum credit four units applicable on a master's degree.

209. Seminar in the Biology of Cold-blooded Vertebrates (2)
Prerequisite: Zoology 60 or 106.
Biology of ectothermic animals. Maximum credit four units applicable on a master's degree.

210. Seminar in the Biology of Warm-blooded Vertebrates (2)
Prerequisite: Zoology 60 or 106.
Biology of endothermic animals. Maximum credit four units applicable on a master's degree.

211. Animal Energetics (3)
Three lectures.
Prerequisites: An upper division course in physiology. A course in calculus and one in biochemistry are recommended.
Energy transformation in animals to include the physiology of starvation, animal energetic efficiency, nutrition, and temperature regulation.

212. Advanced Marine Invertebrate Zoology (3)
One lecture and six hours of laboratory.
Prerequisite: Zoology 112.
Selected topics in advanced marine invertebrate zoology.

290. Bibliography (1)
The use of basic reference books, journals, pertinent bibliographies preparatory to the writing of a master's thesis.

291. Research Techniques (3)
Prerequisite: Consent of graduate adviser.
Analysis of research techniques in zoology.

297. Research (1-3)
Research in one of the fields of zoology.
Maximum credit six units applicable on a master's degree.

298. Special Study (1-3)
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.

299. Thesis or Project (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

BUSINESS ADMINISTRATION

GENERAL INFORMATION

The School of Business Administration offers graduate study leading to the Master of Business Administration degree and to the Master of Science degree in Business Administration. The major goals in the master's degree curriculum are to educate the students for general management positions, for management of the functional areas of business, and for executive responsibilities in organizations having close relationships with business activities. The School of Business Administration is a member of the American Association of Collegiate Schools of Business.

The Master of Business Administration degree is designed to provide a broad education in business for the student with either a business or a non-business undergraduate degree. The Master of Science degree in Business Administration is designed to provide for additional education and specialization in business subjects for the student who has an undergraduate degree in one of the business subject fields. The master's degree programs with a major in business administration have been accredited by the American Association of Collegiate Schools of Business.

Entrance requirements for the two master's degree curriculums are the same. Either degree is available to any student regardless of previous education, provided the requirements of the degree are met.

All students considering graduate work in business are advised to seek further details from the Assistant Dean for Graduate Studies in the School of Business Administration prior to applying for admission.

Close contacts with large and small firms, both local and national, enhance the business student's education. The generous cooperation of local business and government organizations provides opportunities for research and observation for graduate students. The continued professionalization of the business executives' responsibilities has created many opportunities for the student with an advanced degree in business administration.

BUREAU OF BUSINESS AND ECONOMIC RESEARCH

The Bureau of Business and Economic Research is an organized research activity serving the needs of the School of Business Administration and the Department of Economics. Operationally, it is a part of the School of Business Administration, with a director and a policy committee. The principal objectives of the Bureau are to (1) conduct research in the areas of economics and business, with special reference to local and regional problems; (2) facilitate research in these areas by the faculty and students; (3) seek cooperative arrangements with outside individuals and organizations for conducting specific research projects; (4) compile local and regional data; (5) publish the results of Bureau research investigations and aid the faculty in publication of research. Graduate students are encouraged to make use of Bureau facilities.

ADMISSION TO GRADUATE CURRICULUMS

A student seeking admission to either of the master's degree curriculums offered in the School of Business Administration must (1) be admitted to San Diego State with unclassified graduate standing by the Office of Admissions and (2) be admitted to the Graduate Division with classified graduate standing. See Part Three of this Bulletin for information on admission procedures.

ADMISSION TO THE GRADUATE DIVISION AND THE SCHOOL OF BUSINESS ADMINISTRATION

Admission to the Graduate Division with classified graduate standing for the purpose of working toward either the Master of Business Administration degree or the Master of Science degree in Business Administration constitutes admission to the School of Business Administration. Students should request application materials from the Graduate Office. For additional information, see Part Three of this Bulletin under Admission of Graduate Students to the Graduate Division.

All students must have classified graduate standing prior to enrolling in any graduate (200-numbered) course. All three of the following factors are taken into consideration in evaluating a prospective student for classified graduate standing:

(1) his undergraduate grade point average; (2) his score on the Admission Test for Graduate Study in Business; and (3) his score on the Graduate Record Examination Aptitude Test. Transcripts and both test scores should be on file at San Diego State at least four months prior to the date the student expects to register for classes. Details concerning both the Admission Test for Graduate Study in Business and the Graduate Record Examination Aptitude Test may be obtained from the Test Office, San Diego State, or by writing to the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey 08540. These tests are administered five times a year.

MASTER OF BUSINESS ADMINISTRATION DEGREE

ADMISSION TO THE DEGREE CURRICULUM

Regulations governing admission to the Graduate Division and to the School of Business Administration are outlined above and in Part Three of this Bulletin. For admission to the curriculum for the Master of Business Administration degree there are no specific prerequisite courses.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF BUSINESS ADMINISTRATION DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this Bulletin, the student must complete an approved program of studies containing between 30 and 60 units of 200-numbered courses. The exact number of units for each student will depend on the extent of his previous work in business administration. Students with no previous course work in business administration or related fields will normally be expected to complete 60 units. Students with an undergraduate degree in business administration from a professionally accredited school will normally be expected to complete 30 units. Up to six units of course work may be accepted for transfer. Transfer courses must be strictly graduate courses taken in a professionally accredited graduate program.

At least 24 of the total units required must be completed in residence at San Diego State, and at least 9 units of program courses must be completed after advancement to candidacy.

The requirements for the degree are as follows:

1. Complete each of the following twelve courses for which an equivalent has not been completed:
 - B.A. 200. Financial Accounting (3)
 - B.A. 201A. Organization Theory (3)
 - B.A. 201B. Behavior in Organizations (3)
 - B.A. 202A. Quantitative Methods I (3)
 - B.A. 202B. Quantitative Methods II (3)
 - B.A. 203. Marketing (3)
 - B.A. 204. Law for Business Executives (3)
 - B.A. 205. Financial Principles and Policies (3)
 - B.A. 206. Managerial Economics (3)
 - B.A. 208. Managerial Accounting (3)
 - B.A. 209. Computer Programming and Systems Analysis (3)
 - Economics 203. Economic Analysis (3)
2. Complete the following two courses required of all students:
 - B.A. 207. Research and Reporting (3)
 - B.A. 284. Policy Formulation (3)
3. Complete 18 units in the following two categories of concentration and electives:
 - (a) Concentration: No more than 15 units in one of the concentrations listed below, three of which must include B.A. 299, Thesis (Plan A), or B.A. 290, Directed Readings in Business Administration. Students choosing the Directed Readings option must then pass a comprehensive examination in their last semester of coursework in lieu of thesis (Plan B).

Concentrations available:

Accounting
Finance
Human Resources Administration
Information Systems
Insurance
Management
Management Science
Marketing
Production and Operation Management
Real Estate

(b) Electives: At least 3 units in coursework outside the concentration.

The distribution of the 18 units between concentration and electives, and the specific courses in each category are to be determined by the student and graduate adviser in consultation.

4. Electives, if needed, to total at least 30 units.
5. Not more than a total of 6 units in courses 297, Research, and 298, Special Study, combined, will be accepted for credit toward the degree.
6. For regulations concerning grade point averages, final approval for the granting of the degree, award of the degree, and diplomas, see the section entitled "Basic Requirements for the Master's Degree," in Part Three of this Bulletin.

MASTER OF SCIENCE DEGREE IN BUSINESS ADMINISTRATION

ADMISSION TO THE DEGREE CURRICULUM

In addition to meeting the requirements for classified graduate standing in the Graduate Division and admission to the School of Business Administration, as described above, and in Part Three of this bulletin, the student must have successfully completed the following courses or their equivalents before enrolling in 200-numbered courses listed on the official master's degree program:

- Business Administration 1A-1B, Principles of Accounting (4 units)
- Economics 1A-1B, Principles of Economics (6 units)
- Economics 2, Statistical Methods, or Mathematics 12, Elementary Statistics (3 units)
- Business Administration 30A, and Business Administration 30B, Business Law, or Business Administration 118, Advanced Business Law, or Business Administration 131, Legal Factors in Business (6 units)
- Business Administration 83, Information Processing and Computer Programming (3 units)
- Business Administration 132, Fundamentals of Management (3 units)
- Business Administration 150, Marketing Principles (3 units)
- Business Administration 127, Fundamentals of Finance, or Economics 135, Money and Banking (3 units)

Notice of admission to a curriculum with classified graduate standing will be sent to the student by the Graduate Office only upon the recommendation of the School of Business Administration, and after the student has filed an official program.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for classified graduate standing as described above and the general requirements for master's degrees as described in Part Three of this Bulletin, the student must complete a graduate program of 30 approved units including at least twenty-one units in 200-numbered courses. Business Administration 299, Thesis, is required. Economics 203, Economic Analysis, is required unless the student has completed Economics 100A or 100B as a part of his undergraduate preparation. At least twenty-four units must be in business administration and economics. Not more than a total of 6 units in Courses 297, Re-

search, and 298, Special Study, may be accepted for credit toward the degree.

The following concentrations are available:

1. Accounting
2. Finance
3. Human Resources Administration
4. Information Systems
5. Insurance
6. Management
7. Management Science
8. Marketing
9. Production and Operations Management
10. Real Estate

For regulations concerning grade point averages, final approval for the granting of the degree, award of the degree, and diplomas, see the section entitled "Basic Requirements for the Master's Degree," in Part Three of this Bulletin.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in business administration are available to a limited number of qualified students. Application blanks and additional information may be secured from the Dean of the School of Business Administration.

FACULTY

Dean, School of Business Administration: R. P. Hungate, Ph.D.
Associate Dean, School of Business Administration: M. L. Crawford, Ed.D.
Assistant Dean for Graduate Study in Business Administration: T. R. Wotruba, Ph.D.

Chairman, Department of Accounting: W. W. Harned, Ph.D.
Chairman, Department of Finance: W. W. Reints, Ph.D.
Chairman, Department of Information Systems: R. G. Langenbach, Ed.D.
Chairman, Department of Management: T. J. Atchison, D.B.A.
Chairman, Department of Marketing: D. A. Lindgren, Ph.D.

Graduate Advisers:

Accounting: V. E. Odmark
Human Resources Administration: D. W. Belcher
Finance: H. H. Fisher, B. M. Neuberger, W. W. Reints, P. A. Vandenberg
Information Systems: R. G. Langenbach
Insurance: C. R. Smith
Management: T. J. Atchison, D. W. Belcher, L. H. Peters
Management Science: Oliver Galbraith, W. R. Sherrard
Marketing: John McFall
Office Administration: M. L. Crawford, L. A. Pemberton
Production and Operations Management: Oliver Galbraith, A. L. Srbich
Real Estate: W. H. Hippaka

Professors: E. C. Archer, Ed.D.; W. F. Barber, D.B.A.; D. W. Belcher, Ph.D.; Arthur Brodshatzer, D.B.A., C.P.A.; J. L. Chapman, J.D.; M. L. Crawford, Ed.D.; R. D. Darley, Ph.D.; D. B. Ferrel, M.B.A., C.P.A.; E. D. Gibson, Ed.D.; E. A. Hale, Ph.D.; D. R. Hampton, Ph.D.; W. W. Harned, Ph.D.; W. H. Hippaka, Jur.D.; R. G. Langenbach, Ed.D.; E. O. LeBarron, B.A., B.S.; W. A. Nye, Ph.D.; V. E. Odmark, Ph.D., P.A.; L. A. Pemberton, Ed.D.; L. H. Peters, Ph.D.; A. C. Pierson, Ph.D.; Simon Reznikoff, J.D.; G. K. Sharkey, Ph.D.; L. W. Snudden, D.B.A., C.P.A.; A. L. Srbich, Ph.D.; L. L. Straub, M.C.S.; T. R. Wotruba, Ph.D.

Associate Professors: F. C. Akers, Ph.D.; T. J. Atchison, D.B.A.; A. R. Bailey, Ph.D.; L. J. Dodds, M.B.A., C.P.A.; H. H. Fisher, Ph.D.; Oliver Galbraith, Ph.D.; J. V. Ghorpade, Ph.D.; R. W. Haas, D.B.A.; D. A. Lindgren, Ph.D.; John McFall, Ph.D.; D. G. Mitton, Ph.D.; W. W. Reints, D.B.A.; W. R. Sherrard, D.B.A.; K. S. Wade, Ph.D.; H. W. J. Wijnholds, D.R.; J. E. Williamson, Ph.D.

Assistant Professors: R. L. Block, J.D.; J. J. Dee, M.B.A.; R. T. Fisher, Ed.D.; J.D.; Earl Chrysler, M.S.; R. C. Hird, D.B.A.; R. C. Hutchins, M.B.A., M.S.; K. M. Lightner, Ph.D.; Patrick Mahoney, M.B.A.; Brian Neuberger, D.B.A.; K. F. Price, Ph.D.; W. D. Schmier, J.D.; J. L. Shurt, M.A.S.; C. R. Smith, M.S.; H. K. Soldner, D.B.A.; W. E. Spaulding, M.S.; Doris Sponseller, M.A.; Melinda S. Sprague, M.S.; R. K. Steinhorst, Ph.D.; Mario Tilaro, M.S.; P. A. Vandenberg, D.B.A.; D. T. Vanier, Ph.D.; J. W. Walker, Ph.D.; D. B. Yankey, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS
IN BUSINESS ADMINISTRATION

GRADUATE COURSES

Classified graduate standing is a prerequisite for all 200-numbered courses.

200. **Financial Accounting (3)**
Basic concepts and principles of financial accountings; accounting as a data processing system; measurement of business income; financial statements.
- 201A. **Organization Theory (3)**
The business organization viewed as a system. Development of organization theory, functions and structure of organizations, control and adaptation, interaction of systems levels and organizational values.
- 201B. **Behavior in Organizations (3)**
Prerequisite: Business Administration 201A.
Nature of the human resource in organizations. Analysis of organizational systems and managerial actions to direct and control human behavior.
- 202A-202B. **Quantitative Methods (3-3)**
In 202A: Measures of central tendency and variation, sampling and various statistical tests such as analysis of variance, F, t, and X^2 tests. Simple and multiple correlation. In 202B: The design of statistical experiments and various operations research techniques such as simulation, linear programming, queuing theory, and Markov chain analysis.
203. **Marketing (3)**
The marketing activities of a firm in relation to management and society. Application of economic theory to marketing institutions and functions. Not open to students with credit for Business Administration 150 or its equivalent.
204. **Law for Business Executives (3)**
Development significance, and interrelationships of law and business. Analysis of essential aspects of law pertaining to business including materials from the law of contracts, sales, agency, business organizations, property, negotiable instruments, secured transactions. Effects of government regulation of labor and business.
205. **Financial Principles and Policies (3)**
Prerequisite: Business Administration 200.
Finance and financial institutions as they relate to the firm and the flow of funds. Emphasis upon the supply of and demand for capital; principles and tools of business finance; money and capital markets.
206. **Managerial Economics (3)**
Prerequisite: Economics 203.
Role of economic theory in management analysis and decisions. Study of demand, cost, and supply theories from a business viewpoint.
207. **Research and Reporting (3)**
Prerequisite: Business Administration 202B.
Principles of research design and data accumulation. The analysis and effective presentation of data related to business and industry.
208. **Managerial Accounting (3)**
Prerequisite: Business Administration 200.
Accounting in relation to the decision making process; various cost systems; relevancy of various cost concepts; direct costing, flexible budgets, distribution costing; break-even analysis; capital budgeting; and other techniques of management planning and control.
209. **Computer Programming and Systems Analysis (3)**
Prerequisite: B.A. 202A.
Fundamentals of computers, problem-oriented computer language, flow-charting logic and techniques, analysis of the synthesis of computer-based systems.

210. **Theory and Analysis of Financial Statements (3)**

Prerequisite: Business Administration 200.
The theories, principles, and concepts underlying financial statements; measurement and presentation of enterprise resources, equities, and income in accordance with generally accepted accounting principles; consideration of price level problems.

211. **Advanced Accounting (3)**

Prerequisite: Business Administration 210.
Principles and concepts as related to the measurement, determination, and presentation of resources, equities, and income of parent and affiliated companies; concepts of fund accounting; specialized reporting for partnership formation, income distribution, and liquidation.

212. **Income Tax Accounting (3)**

Prerequisite: Business Administration 200.
Provisions of the federal tax law, including preparation of returns for individuals, partnerships, corporations, estates, trusts; procedures for reporting deficiency assessments, refunds, and other administrative practices.

213. **Auditing (3)**

Prerequisite: Business Administration 211.
Critical analysis of the application of auditing principles in verification of financial statements; review of AICPA and SEC bulletins and regulations; consideration of professional ethics, audit standards, procedures, sampling techniques, and report writing; trends and developments in auditing profession.

214. **Seminar in Accounting Information Systems (3)**

Prerequisites: Business Administration 202B and 208.
Systems design and related controls. Emphasis on mathematics, statistics, and computers in planning and reporting.

219. **Seminar in Accounting Theory (3)**

Prerequisite: Business Administration 211.
Historical development of accounting principles and theory; problems in valuation, income determination, and statement presentation.

220. **Legal Aspects of Labor-Management Relations (3)**

Legal aspects of union organizational activities, representation proceedings, unfair labor practices, collective bargaining and contracts, grievances and arbitration, strikes, picketing, boycotts and injunctions.

221. **Insurance Principles and Practices (3)**

Nature and extent of personal, business, and social risk. Risk handling techniques; insurance principles and practices; basic contracts analysis; insurance underwriting and rating; insurance problems and trends; personal and business risk management.

223. **Seminar in Business Finance (3)**

Prerequisite: Business Administration 205.
Application of principles of finance to current problems in financial management, with emphasis on planning and development of tools for use in decision making. Consideration of case materials, study of the literature, and development of individual student reports.

224. **Seminar in Investments (3)**

Prerequisite: Business Administration 205.
Examination of firms from an investment point of view; historical and current developments affecting investment values; sources of information; techniques of analysis; measurement of risks, returns, and investment values.

225. **Seminar in Insurance (3)**

Prerequisite: Business Administration 221.
Risk management in effective business operations. Programing of personal and business risk problems. Insurance institutions.

- 228. Seminar in International Business Finance (3)**
Prerequisite: Business Administration 205.
International finance applied to the business firm.
- 229. Seminar in Financial Markets (3)**
Prerequisite: Business Administration 205.
Analysis of money and capital markets. Emphasis on factors of influence and sources and uses of data. Survey of literature in the field.
- 230. Production and Operations Management (3)**
Prerequisite: Business Administration 202B.
Theory, concepts and decision analysis related to effective utilization of major factors of production in manufacturing and service industries. Utilizes the system approach to achieve unification of the production elements in terms of both analysis and synthesis. Not open to students who have credit for a basic course in production management.
- 231. Advanced Methods Engineering and Work Measurement (3)**
Prerequisite: Business Administration 230.
Analysis and solution of plant management problems using multiple operation analysis and advanced work measurement techniques (M.T.M., Work Factor System, and others). Relation of production to other functions.
- 232. Quality Control (3)**
Prerequisite: Business Administration 230.
Statistical techniques for controlling quality, reliability and maintainability, types of control and limit charts.
- 233. Inventory and Production Control (3)**
Prerequisite: Business Administration 230.
The design and analysis of single and multi-product control systems.
- 234. Seminar in Production and Operations Management (3)**
Prerequisite: Business Administration 231.
Industrial risk and forecasting; diagnosis of industrial problems; production policies and organization; determination of production methods; coordination of production activities. (Formerly numbered Business Administration 239A.)
- 236. Operations Research (3)**
Prerequisite: Business Administration 202A and concurrent registration in 202B.
Network analysis, learning curves, PACE, line of balance, gamma and beta distributions and dynamic programming. (Formerly numbered Business Administration 232.)
- 237. Computer Implemented Optimum-Seeking Methods (3)**
Prerequisite: Business Administration 236.
Programming and simulation techniques for analysis of interlocking decision problems with and without the use of computers. Derivation of man, machine, and system models. Design of steady state and dynamic stochastic models.
- 238. Management Systems and Simulation (3)**
Prerequisite: Business Administration 236.
The testing and design of input-output management decision systems. Simulation and heuristic techniques are used to evaluate and improve the model. Empirical data will be used where possible.
- 239. Seminar in Management Science (3)**
Prerequisite: Business Administration 236.
Analysis by quantitative techniques for managerial planning and decision-making. Applications of operations research and other concepts to industrial situations. (Formerly numbered and entitled Business Administration 239B.)
- 240. Seminar in Manpower Planning and Staffing (3)**
Prerequisites: BA 201-B, or any one of Public Administration 241, Economics 250, Psychology 220, Sociology 220.
Theories and models of manpower planning; inventorying and forecasting of manpower needs and requirements; labor force analysis; recruitment; the staffing process; measurement tools and techniques.
- 241. Seminar in Union-Management Relations (3)**
Prerequisites: BA 201-B, or any one of Public Administration 241, Economics 250, Psychology 220, Sociology 220.
Interaction of unions and business organizations with particular emphasis upon collective bargaining. Effects upon management and society. Trends in collective bargaining and in the organization of employees.
- 242. Seminar in Compensation (3)**
Prerequisites: Business Administration 201-B, or any one of Public Administration 241, Economics 250, Psychology 220, Sociology 220.
The organizational process of compensating employees. Compensation theory from economics, psychology, and sociology. Compensation systems and their effects upon organizations and individuals.
- 243. Seminar in Organizational Development (3)**
Prerequisites: BA 201-B, or any one of Public Administration 241, Economics 250, Psychology 220, Sociology 220.
The process of developing human resources and organizations. Theories of organizational development; tools and techniques, analysis of manpower and organizational development programs.
- 249. Seminar in Human Resources Administration (3)**
Prerequisites: BA 201-B or any 6 units of courses in Human Resources Administration.
Analysis of issues and application of behavioral science theory in acquiring, developing, rewarding, and utilizing human resources.
- 250. Seminar in Marketing and the Economy (3)**
Prerequisite: Business Administration 203.
Advertising, selling, sales promotion, and merchandising as they relate to society, business and the economy.
- 251. Seminar in Marketing Theory (3)**
Prerequisite: Business Administration 203.
Marketing theory and contributions of economics and behavioral sciences to marketing thought.
- 252. Marketing Institutions (3)**
Prerequisite: Business Administration 203.
Analysis of development of wholesaling and retailing and of growth, change, and efficiency of these institutions in the American and other economies.
- 253. Seminar in Marketing Price Policy (3)**
Prerequisite: Business Administration 203.
Study of pricing strategy and price determination in business organizations.
- 254. Seminar in Sales Management (3)**
Prerequisite: Business Administration 203.
Sales management and personal selling decisions and strategies in business organizations.
- 255. Seminar in International Marketing (3)**
Prerequisite: Business Administration 203.
The impact of cultural social, political, economic, and other environmental variables upon international marketing systems and the decision-making process of multinational marketing operations.

- 228. Seminar in International Business Finance (3)**
Prerequisite: Business Administration 205.
International finance applied to the business firm.
- 229. Seminar in Financial Markets (3)**
Prerequisite: Business Administration 205.
Analysis of money and capital markets. Emphasis on factors of influence and sources and uses of data. Survey of literature in the field.
- 230. Production and Operations Management (3)**
Prerequisite: Business Administration 202B.
Theory, concepts and decision analysis related to effective utilization of major factors of production in manufacturing and service industries. Utilizes the system approach to achieve unification of the production elements in terms of both analysis and synthesis. Not open to students who have credit for a basic course in production management.
- 231. Advanced Methods Engineering and Work Measurement (3)**
Prerequisite: Business Administration 230.
Analysis and solution of plant management problems using multiple operation analysis and advanced work measurement techniques (M.T.M., Work Factor System, and others). Relation of production to other functions.
- 232. Quality Control (3)**
Prerequisite: Business Administration 230.
Statistical techniques for controlling quality, reliability and maintainability, types of control and limit charts.
- 233. Inventory and Production Control (3)**
Prerequisite: Business Administration 230.
The design and analysis of single and multi-product control systems.
- 234. Seminar in Production and Operations Management (3)**
Prerequisite: Business Administration 231.
Industrial risk and forecasting; diagnosis of industrial problems; production policies and organization; determination of production methods; coordination of production activities. (Formerly numbered Business Administration 239A.)
- 236. Operations Research (3)**
Prerequisite: Business Administration 202A and concurrent registration in 202B.
Network analysis, learning curves, PACE, line of balance, gamma and beta distributions and dynamic programming. (Formerly numbered Business Administration 232.)
- 237. Computer Implemented Optimum-Seeking Methods (3)**
Prerequisite: Business Administration 236.
Programming and simulation techniques for analysis of interlocking decision problems with and without the use of computers. Derivation of man, machine, and system models. Design of steady state and dynamic stochastic models.
- 238. Management Systems and Simulation (3)**
Prerequisite: Business Administration 236.
The testing and design of input-output management decision systems. Simulation and heuristic techniques are used to evaluate and improve the model. Empirical data will be used where possible.
- 239. Seminar in Management Science (3)**
Prerequisite: Business Administration 236.
Analysis by quantitative techniques for managerial planning and decision-making. Applications of operations research and other concepts to industrial situations. (Formerly numbered and entitled Business Administration 239B.)

- 240. Seminar in Manpower Planning and Staffing (3)**
Prerequisites: BA 201-B, or any one of Public Administration 241, Economics 250, Psychology 220, Sociology 220.
Theories and models of manpower planning; inventorying and forecasting of manpower needs and requirements; labor force analysis; recruitment; the staffing process; measurement tools and techniques.
- 241. Seminar in Union-Management Relations (3)**
Prerequisites: BA 201-B, or any one of Public Administration 241, Economics 250, Psychology 220, Sociology 220.
Interaction of unions and business organizations with particular emphasis upon collective bargaining. Effects upon management and society. Trends in collective bargaining and in the organization of employees.
- 242. Seminar in Compensation (3)**
Prerequisites: Business Administration 201-B, or any one of Public Administration 241, Economics 250, Psychology 220, Sociology 220.
The organizational process of compensating employees. Compensation theory from economics, psychology, and sociology. Compensation systems and their effects upon organizations and individuals.
- 243. Seminar in Organizational Development (3)**
Prerequisites: BA 201-B, or any one of Public Administration 241, Economics 250, Psychology 220, Sociology 220.
The process of developing human resources and organizations. Theories of organizational development; tools and techniques, analysis of manpower and organizational development programs.
- 249. Seminar in Human Resources Administration (3)**
Prerequisites: BA 201-B or any 6 units of courses in Human Resources Administration.
Analysis of issues and application of behavioral science theory in acquiring, developing, rewarding, and utilizing human resources.
- 250. Seminar in Marketing and the Economy (3)**
Prerequisite: Business Administration 203.
Advertising, selling, sales promotion, and merchandising as they relate to society, business and the economy.
- 251. Seminar in Marketing Theory (3)**
Prerequisite: Business Administration 203.
Marketing theory and contributions of economics and behavioral sciences to marketing thought.
- 252. Marketing Institutions (3)**
Prerequisite: Business Administration 203.
Analysis of development of wholesaling and retailing and of growth, change, and efficiency of these institutions in the American and other economies.
- 253. Seminar in Marketing Price Policy (3)**
Prerequisite: Business Administration 203.
Study of pricing strategy and price determination in business organizations.
- 254. Seminar in Sales Management (3)**
Prerequisite: Business Administration 203.
Sales management and personal selling decisions and strategies in business organizations.
- 255. Seminar in International Marketing (3)**
Prerequisite: Business Administration 203.
The impact of cultural social, political, economic, and other environmental variables upon international marketing systems and the decision-making process of multinational marketing operations.

- 256. Seminar in Consumer Behavior (3)**
Prerequisite: Business Administration 203.
The study of consumer behavior in relation to marketing strategy and the changing environment of business.
- 257. Seminar in Industrial Marketing Management (3)**
Prerequisite: Business Administration 203.
The management of marketing decisions and strategies peculiar to the industrial market.
- 259. Market Analysis and Research (3)**
Prerequisites: Business Administration 203 and 202B.
Application of statistical and mathematical methods to market problems, consumer research, and product analysis.
- 260. Principles of Real Estate (3)**
Functions and regulation of the real estate market, real estate finance, property management, real estate appraisal theory, specialized properties, urban development, and contemporary real estate problems. (Formerly numbered Business Administration 222.)
- 261. Seminar in Real Estate (3)**
Prerequisite: Business Administration 222.
Current problems in real property. Regional land use planning. (Formerly numbered Business Administration 226.)
- 262. Seminar in Real Estate Investment (3)**
Prerequisite: Business Administration 260.
Investment characteristics of real property. Analysis of real estate investment by institutions, corporations, individuals, and government. Measuring investment yield potential of industrial, commercial, and residential projects. Real estate investment and social policy.
- 263. Seminar in Real Estate Finance (3)**
Prerequisite: Business Administration 260.
Theories and factors governing the financial functions of lenders, borrowers, governmental agencies, and collateral in financing real estate.
- 264. Seminar in Valuation of Real Property (3)**
Prerequisite: Business Administration 260.
Valuation of real property by the cost, income, and market approaches to value. Evaluation of property taken in eminent domain proceedings, air rights, inverse condemnation, lease-hold interests.
- 270. Seminar in Business Education (3)**
Study of some phase of business education, such as administration and supervision; distributive and basic business education; trends in and methods of teaching shorthand and typewriting.
- 273. Seminar in Information Storage and Retrieval (3)**
Prerequisites: Business Administration 202A and 209.
Study of the theory and techniques of information storage and retrieval, to include the study of optimization and randomization of data storage.
- 274. Seminar in Advanced Computer Application (3)**
Prerequisites: Business Administration 202A and 209.
Analysis, design, and coding of control and executive routines. Analysis of methods for using library routines.
- 278. Seminar in Management of Information Systems (3)**
Prerequisite: Business Administration 273.
Advanced information systems. Emphasis on current managerial trends and developments and on individual student research.
- 279. Seminar in Data Systems Design (3)**
Prerequisites: Business Administration 202B, 273 and 274.
Research in the analysis and design of data processing systems.
- 281. Behavioral Sciences for Management (3)**
Prerequisite: Business Administration 201B.
Applications of findings from behavioral sciences to management problems and decisions. Study of organization cultures and subcultures. Impact of human behavior on the enterprise.
- 282. Group Processes and Leadership (3)**
Prerequisite: Business Administration 201B.
Perceptions and processes in work groups. Experience in interpersonal networks, influence and rewards, stereotypes; managing differences and conflicts.
- 283. Origins and Nature of American Business Enterprise (3)**
Prerequisite: Business Administration 201B.
Factors underlying the American system of business enterprise: modern corporations, the corporation man, technological change, the business community and politics, and other significant issues.
- 284. Policy Formulation (3)**
Prerequisite: Advancement to candidacy and consent of instructor.
Building and maintaining enterprises in our society; determining objectives; developing policies and plans for achievement; measuring and controlling organizational activities; reappraising objectives and policies on the basis of new developments.
- 285. Seminar in Business Planning (3)**
Prerequisites: Business Administration 201A, 203, 205, and nine units in Business Administration courses numbered 210 or above.
Strategic decision-making, long range forecasting, and corporate planning with major emphasis on product-market relationships.
- 289. Seminar in Organization and Management (3)**
Prerequisite: Business Administration 201B.
Analysis of problems in business and other organizations. Organization and decision theory and contemporary developments in management science are emphasized.
- 290. Directed Readings in Business Administration (3)**
Prerequisite: Advancement to candidacy.
Preparation for the comprehensive examination for those students in the M.B.A. program under Plan B.
- 297. Research (3)**
Prerequisite: Advancement to candidacy.
Research in one of the fields of Business Administration.
- 298. Special Study (1-3)**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.
- 299. Thesis (3)**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

CHEMISTRY

GENERAL INFORMATION

The Department of Chemistry, in the College of Sciences, in cooperation with the Department of Chemistry, University of California, San Diego, offers a program of graduate study leading to the Doctor of Philosophy degree in Chemistry. This degree is awarded jointly by the Board of Regents of the University of California and the Board of Trustees of the California State Colleges in the names of the University of California, San Diego, and San Diego State College.

Graduate programs leading to the Master of Arts degree in Chemistry, the Master of Arts degree for teaching service with a concentration in Chemistry, and the Master of Science degree in Chemistry are also offered.

The facilities, staff, and equipment of the Department of Chemistry meet the requirements of the American Chemical Society, and students obtaining the A.B. or B.S. degree with the approved curriculum are granted the A.C.S. certification. All graduate study is based on this sound undergraduate foundation. Specialized equipment is available for research projects in the well equipped chemistry building.

SECTION I. MASTER'S DEGREE PROGRAMS

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division. In addition, the student with a major in chemistry from another accredited institution should have included in the undergraduate program a year course in each of the following fields: general chemistry, analytical chemistry, organic chemistry, and physical chemistry. The course in physical chemistry must have included laboratory work. In addition, the student should have had enough specialized elective courses in chemistry to give a minimum of 24 units in upper division courses, including at least one course which has three years of chemistry as a prerequisite.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, including the foreign language requirement, as stated in Part Three of this bulletin. In addition, the student must pass an orientation examination in chemistry. This examination should be taken during the first semester in residence.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes a major consisting of at least 24 units in chemistry from courses listed below as acceptable on master's degree programs. At least 15 of these units must be in 200-numbered courses, excluding Chemistry 290, 297 and 298. Chemistry 211, 290, 291, and 299 are required. The student must demonstrate a reading knowledge of scientific German and must pass a final oral examination on his thesis.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE FOR TEACHING SERVICE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes a concentration consisting of at least 18 units from courses listed below as acceptable on master's degree programs in chemistry, of which at least 15 units must be in 200-numbered courses. Chemistry 290 and Chemistry 299 are required courses. The student must pass a final oral examination on his thesis.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for classified graduate standing, the student must satisfy the basic requirements for the master's degree as described

in Part Three of this bulletin. He must also complete a graduate program which includes a major consisting of at least 24 units in chemistry from courses listed below as acceptable on master's degree programs. At least 15 of these units must be in 200-numbered courses, excluding Chemistry 290, 297, 298. Chemistry 211 and 291 are required. Subject to departmental approval, the student may elect Plan A with the thesis (in which case the program must include Chemistry 290 and 299), or Plan B with the comprehensive examination in lieu of the thesis. A student electing Plan A must pass a final oral examination on his thesis. The student must demonstrate a reading knowledge of scientific German or Russian. This requirement will be considered to have been met by the student who holds the American Chemical Society Certificate.

SECTION II. JOINT DOCTORAL PROGRAM

Students who desire to become candidates for the degree of Doctor of Philosophy in Chemistry should realize that it is granted not for the fulfillment of residence or course requirements alone, but more for the student's general grasp of chemistry and his accomplishments in this field. The student must demonstrate his ability to work independently and to make an original contribution to the field of chemistry. A student with an acceptable baccalaureate degree will normally spend at least three years of full-time study in earning the degree.

ADMISSION TO THE GRADUATE DIVISIONS

An applicant for admission to the joint doctoral program must first be admitted to regular graduate standing in the Graduate Division of the University of California, San Diego, and to classified graduate standing in the Graduate Division of San Diego State. In seeking admission to the two Graduate Divisions, the applicant must pay all fees required by each institution and comply with the admission procedures stated in this bulletin and in the current edition of the Graduate Studies Brochure, University of California, San Diego.

ADMISSION TO THE PROGRAM

In order that he may participate effectively in this program, the entering student will be required to have a mastery of the subjects usually presented in the undergraduate curriculum: physical, organic, analytical, and inorganic chemistry. All applicants will be expected to present the equivalent of one year of physics and of mathematics at least through integral calculus. Students should be prepared to take placement examinations which will be administered by a joint committee and will cover the fields of analytical, inorganic, organic and physical chemistry, and mathematics.

The request of each student for admission to the joint doctoral program will be considered on an individual basis. Requests for specific research assignments will be considered in the light of availability of faculty members qualified for, and interested in, supervision of the proposed individual program. Approval may also be limited by the availability of specialized equipment or other physical facilities necessary for satisfactory completion of the proposed project. On each of the cooperating campuses, there is a Graduate Adviser for the joint doctoral program in chemistry.

After a student has been formally admitted to the two Graduate Divisions with appropriate graduate standing, he must declare his intention to enter the joint doctoral program by filing an application with the Graduate Adviser. The application must be approved and signed by the Graduate Adviser on each campus and forwarded to the Graduate Deans for formal certification of admission to the joint doctoral program. Entry occurs when the student is formally accepted by the Graduate Deans of each of the two Graduate Divisions.

RESIDENCY REQUIREMENTS

After formal admission to the joint doctoral program in chemistry, the student must spend at least one year in full-time residence on each of the two campuses. The definition of residence must be in accord with the regulations of the University of California, San Diego. At San Diego State, the minimum of one year of full-time residence consists of registration in and completion of at least seven semester units each semester of the required year's residence.

FOREIGN LANGUAGE REQUIREMENTS

A reading knowledge of one foreign language (either German or Russian) is required for the Ph.D. This knowledge must be demonstrated by passing the Educational Testing Service examination at the 60% level (see U.C.S.D. Graduate Division: Foreign Language Requirement). Another foreign language may be substituted for Russian or German through petition to the chairman. Students whose native language is not English must demonstrate the ability to read, write, speak and understand scientific English. Normally this requirement is met by satisfactory performance in the usual graduate-level courses in chemistry and in the oral qualifying examination. The language requirement must be fulfilled before taking the qualifying examination, usually in the second year of study.

JOINT GUIDANCE COMMITTEE

A Joint Guidance Committee consisting of two faculty members from each of the cooperating institutions will be appointed for each student who has been formally admitted to the joint doctoral program. This committee will prepare, conduct, and evaluate the placement examinations mentioned above and will develop a study plan in consultation with the student. The study plan must be approved by the Graduate Councils on the two campuses and shall include: (1) the method to be followed in satisfying the foreign language requirements; (2) the sequence of residence study at each of the two institutions; (3) the distribution of courses to be taken at each of the two institutions; (4) the arrangement of any additional examinations required by either of the two Departments of Chemistry; and (5) such other matters as may be deemed important by the Joint Guidance Committee.

The Joint Guidance Committee guides and advises the student in preparation for his Qualifying Examination and the work for his dissertation. Courses recommended will depend on the student's performance in the Placement Examinations and upon his field of specialization.

When, in the judgment of the Joint Guidance Committee, the student is prepared for the Qualifying Examination and has satisfied the requirements of the two Departments of Chemistry, the Chairman of the Joint Guidance Committee will notify the Chairman of the Departments of Chemistry that the student is ready to proceed and will request the appointment of the student's Joint Doctoral Committee. This request must include a report that the foreign language requirement has been satisfied.

JOINT DOCTORAL COMMITTEE

A Joint Doctoral Committee consisting of three faculty members from each of the cooperating institutions will be appointed by the Graduate Councils jointly. Each departmental Chairman will nominate three members of this committee, one of whom must be from a department other than chemistry. The Joint Doctoral Committee will conduct the oral part of the Qualifying Examination and make arrangements for the written part when required. It will report the satisfactory passage of the Qualifying Examination to the Graduate Deans. The Joint Doctoral Committee is completely responsible for the student and may set any requirements that are appropriate. It will guide the student through his research, approve his dissertation, and conduct his final examination. All members of the committee must be present at the Qualifying Examination and the Final Examination and must sign the reports on each. All members must sign the approval page of the dissertation.

ADVANCEMENT TO CANDIDACY

If the student successfully passes the Qualifying Examination, the Graduate Dean, University of California, San Diego, will send him an application for advancement to candidacy. This application must be completed in consultation with and signed by the Chairman of the student's Joint Doctoral Committee. Upon payment of the Candidacy Fee to the University of California, San Diego, and after approval by both Graduate Deans, the student will be notified of his advancement to candidacy by the Graduate Dean, University of California.

A minimum of two semesters of resident study will be required between the date of advancement to candidacy and of awarding the degree.

DISSERTATION

A dissertation on a subject chosen by the candidate and approved by his Joint Doctoral Committee, bearing on his field of specialization and showing his ability to make independent investigation, will be required of every candidate. In its preparation the candidate will be guided by his Joint Doctoral Committee which also will pass on the merits of the completed dissertation. The requirements for completing and filing the dissertation, including the number of copies required, will be determined jointly by the Graduate Deans. Requirements now in force at the University of California, San Diego, must be met, including microfilming and such other provisions as may be decided by the Graduate Council of San Diego State.

FINAL EXAMINATION

The candidate must pass a final oral examination conducted by his Joint Doctoral Committee. This examination will deal primarily with the relations of the dissertation to the general field in which the subject lies. For passage, unanimous affirmative votes will be required from the committee members of each of the cooperating institutions. After passing the Final Examination, and with the approval of the Graduate Councils of both institutions, the student will be nominated for the degree.

AWARD OF DEGREE

The Doctor of Philosophy degree in Chemistry will be awarded jointly by the Regents of the University of California and the Trustees of the California State Colleges in the names of the University of California, San Diego, and San Diego State College.

PROCEDURES

The time required for a student to complete the requirements for the joint doctorate is not expressed in terms of units of credit or number of semesters but will ultimately depend upon the amount of time required to master the subject matter field and to complete a satisfactory dissertation.

The official records of all students who have formally been admitted to the joint doctoral program will be maintained by the Registrar, University of California, San Diego, and complete copies of these records will be on file in the Graduate Office, San Diego State. Transcripts of record will be issued by the Registrar, University of California, San Diego, upon request.

A student in residence on one of the two campuses may register for not more than one course at the other institution. Information on fees and other details of registration may be obtained from the Graduate Deans.

All student petitions must be addressed to the two Graduate Deans, jointly.

Courses taken by students who have been formally admitted to the joint doctoral program at either institution, and the grades obtained, will be reported to the Registrar of the other institution.

A student in residence on one of the campuses will be subject to all rules and regulations governing graduate students in the Graduate Division at that institution unless they are contrary to the provisions of this joint doctoral program.

All inquiries concerning the operation of the joint doctoral program should be directed to the Graduate Dean at either of the two campuses.

STAFF

The following faculty members of the Departments of Chemistry of the cooperating institutions will participate in the joint doctoral program, being available for direction of research and as departmental members of Joint Doctoral Committees.

University of California, San Diego:

Graduate Adviser: James R. Arnold; Alternate: Joseph E. Mayer
Staff: James R. Arnold, Martin D. Kamen, Joseph Kraut, Joseph E. Mayer, Stanley L. Miller, Charles L. Perrin, G. N. Schrauzer, Teddy G. Traylor, Harold C. Urey, Robert L. Vold, Bruno H. Zimm.

San Diego State:

Graduate Adviser: R. W. Isensee; Alternate: A. N. Wick.
Staff: Mitchel T. Abbott, Edward Grubbs, Reilly C. Jensen, Walter D. Jones, Edward O'Neal, William H. Richardson, Morey A. Ring, Clay M. Sharts, Charles J. Stewart, Arne N. Wick.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in chemistry are available to a limited number of qualified students. Application blanks and additional information may be secured from the Graduate Adviser in the Department of Chemistry.

FACULTY

Chairman, Department of Chemistry: E. P. Wadsworth, Jr., Ph.D.

Graduate Adviser: R. W. Isensee

Credentialed Adviser: J. G. Malik

Professors: E. J. Grubbs, Ph.D.; N. J. Harrington, Ed.D.; L. H. Hellberg, Ph.D.; R. W. Isensee, Ph.D.; Reilly Jensen, Ph.D.; W. D. Jones, Ph.D.; Lionel Joseph, Ph.D.; V. J. Landis, Ph.D.; J. G. Malik, Ph.D.; H. E. O'Neal, Ph.D.; M. A. Ring, Ph.D.; D. H. Robinson, Ph.D.; R. D. Rowe, Ph.D.; C. M. Sharts, Ph.D.; J. A. Spangler, Ph.D.; C. J. Stewart, Ph.D.; E. P. Wadsworth, Jr., Ph.D.; Harold Walba, Ph.D.; Arne N. Wick, Ph.D.; J. H. Woodson, Ph.D.

Associate Professors: M. T. Abbott, Ph.D.; L. E. Bennett, Ph.D.; J. H. Mathewson, Ph.D.; W. H. Richardson, Ph.D.

Assistant Professors: Dewitt Coffey, Jr., Ph.D.; M. M. Malley, Ph.D.; S. B. W. Roeder, Ph.D.

COURSES ACCEPTABLE ON ADVANCED DEGREE PROGRAMS IN CHEMISTRY

UPPER DIVISION COURSES

- | | |
|----------------------------------------|-----------------------------------------------------|
| 116A-116B. General Biochemistry (3-3) | 155. Advanced Instrumental Methods (4) |
| 118. Advanced Physical Chemistry (3) | |
| 127A-127B. Inorganic Chemistry (3-3) | 160A-160B. Principles of Chemical Engineering (3-3) |
| 131. Theoretical Organic Chemistry (3) | 170. Radiochemistry (3) |
| 154. Organic Qualitative Analysis (3) | 180. Chemical Oceanography (3) |
| | 191. Chemical Literature (1) |

GRADUATE COURSES

200. Seminar (1 to 3)

An intensive study in advanced chemistry, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

210. Advanced Topics in Physical Chemistry (1-3)

Prerequisite: Consent of instructor.
Selected topics in physical chemistry. Maximum credit six units applicable to a master's degree.

211. Chemical Thermodynamics (3)

Prerequisites: Mathematics 52 and Chemistry 110B.
Chemical thermodynamics and an introduction to statistical thermodynamics.

212. Chemical Kinetics (3)

Prerequisites: Mathematics 52 and Chemistry 110B.
Theory of rate processes; applications of kinetics to the study of reaction mechanisms.

213. Quantum Chemistry (3)

Prerequisites: Mathematics 52 and Chemistry 110B.
Quantum mechanics of atomic and molecular systems; applications to chemical bonding theory.

214. Molecular Structure (3)

Prerequisites: Mathematics 52 and Chemistry 110B.
Theory and techniques used in the determination of molecular structure.

215. Chemical Statistical Mechanics (3)

Prerequisite: Chemistry 211.
Statistical mechanics as applied to chemical systems.

216. Physical Chemistry of Electrolytic Solutions (2)

Prerequisite: Chemistry 211.
Theory of ionic solutions: electrode potentials, activity coefficients, partial molal quantities, conductance and ion association.

220. Advanced Topics in Inorganic Chemistry (1-3)

Prerequisite: Chemistry 127A.
Selected topics in inorganic chemistry. Maximum credit six units applicable on a master's degree.

221. Mechanisms of Inorganic Reactions (3)

Prerequisite: Chemistry 127A.
Mechanisms in inorganic reactions with an emphasis on coordination chemistry.

222. Chemistry of the Nonmetals (2)

Prerequisite: Chemistry 127A.
An advanced systematic study of the nonmetallic elements and their compounds.

230. Advanced Topics in Organic Chemistry (1-3)

Prerequisite: Chemistry 112.
Selected topics in organic chemistry. Maximum credit six units applicable on a master's degree.

231. Mechanisms of Organic Reactions (3)

Prerequisites: Chemistry 110B and 112.
Reactivity and mechanism in organic reactions.

232. Advanced Organic Chemistry (3)

Prerequisite: Chemistry 112.
Applications and limitations of organic reactions from the viewpoint of synthesis.

250. Advanced Topics in Analytical Chemistry (1-3)

Prerequisite: Chemistry 110B.
Selected topics from the field of analytical chemistry. Maximum credit six units applicable on a master's degree.

260. Advanced Topics in Biochemistry (1-3)

Prerequisite: Chemistry 116B.
Selected topics in biochemistry. Maximum credit six units applicable on a master's degree.

261. Advanced Biochemical Techniques (2)

Prerequisite: Chemistry 116A.
Six hours of laboratory. Theory and practice of current research techniques in biochemical research.

262. Enzymology (2)

Prerequisite: Credit or concurrent registration in Chemistry 109B or 110B.
Theory and techniques used in the study of the mechanism of action of enzymes.

270. Nuclear Chemistry (2)

Prerequisite: Chemistry 110B.
Theoretical applications of radioactivity to chemistry, radiation, chemistry, decay laws and processes, nuclear structure and reactions.

290. Bibliography (1)

Exercise in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

291. Research Seminar (1)

Prerequisite: Consent of department chairman.
Discussions on current research by students, faculty, and visiting scientists. Each student will make a presentation based on the current literature.

297. Research (1-3)

Prerequisite: Consent of instructor.
Research in one of the fields of chemistry. Maximum credit six units applicable on a master's degree.

298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.

299. Thesis (3)

Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

DRAMA

GENERAL INFORMATION

The Department of Drama, in the College of Professional Studies, offers graduate study leading to the Master of Arts degree in Drama. The department offers advanced study in the various areas of drama as they relate to acting, directing, playwriting, scene design, lighting, costume, and makeup. The center for graduate students in drama on the San Diego State campus is the Dramatic Arts Building, one of the finest educational theatre plants in the United States. The Dramatic Arts Building contains a main stage with an auditorium seating 500 and an experimental theatre seating 200, three classrooms, a scene design drafting room, a fully equipped costume laboratory, a spacious scene shop, and several rehearsal rooms.

ADMISSION TO THE GRADUATE DIVISION

In addition to the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin, the student will be required to complete the departmental diagnostic examination during his first semester of graduate enrollment in the department. The examination is administered each semester on the first Saturday following the beginning of classes.

ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, as described in Part Three of this bulletin. In addition, students seeking the Master of Arts degree in Drama are required to have attained classified graduate standing and to have completed Drama 200.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes at least 24 units from courses listed below as acceptable on master's degree programs in drama of which at least 18 must be in 200-numbered courses. Drama 200, Research and Bibliography, Drama 247, Seminar in History of Theatre and Drama, and Drama 299, Thesis, are required courses.

ASSISTANTSHIPS

Graduate teaching assistantships in Drama are available to a limited number of qualified students. Application blanks and further information may be obtained from the Department Chairman.

FACULTY

Chairman, Department of Drama: D. W. Powell, M.F.A.
Graduate Adviser: G. S. Howard
Credential Adviser: C. E. Stephenson
Professors: Kjell Amble, Ph.D.; D. W. Powell, M.F.A.; C. E. Stephenson, Ph.D.
Associate Professor: G. S. Howard, Ph.D.
Assistant Professors: A. M. Annas, M.F.A.; M. L. Harvey, Ph.D.; M. J. Lessley, Ph.D.; Mack Owen, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN DRAMA

UPPER DIVISION COURSES

- | | |
|-----------------------------------------------------|-----------------------------------------|
| 109. Verse Choir Directing (2 or 3) | 140B. Styles in Scenic Design (3) |
| 120. Play Analysis (3) | 145A-145B. Stage Lighting (3-3) |
| 121. Theatre Criticism (3) | 148. Advanced Dramatic Production (3) |
| 122. Playwriting, the One-Act Play (3) | 151. Costume, Movement, and Manners (3) |
| 123. Playwriting, the Long Play (3) | 152A-152B. History of Costume (3-3) |
| 126. Theory of Production for the Musical Stage (3) | 160A-160B. History of the Theatre (3-3) |
| 127A-127B. Stage Direction (3-3) | 165. History of American Theatre (3) |
| 131. Advanced Acting Theory (3) | 198. Selected Topics in Drama (1-3)# |
| 132. Advanced Acting (3) | |
| 140A. Scenic Design (3) | |

Not more than 3 units of Drama 198 are acceptable on master's degree programs in drama.

GRADUATE COURSES

200. Research and Bibliography (3)
Basic reference works, scholarly and critical journals; introduction to bibliographical techniques; exercises and problems in methods and exposition of research as it relates to the various areas of speech. Recommended for first semester of graduate work, and prerequisite to advancement to candidacy.
243. Seminar in Staging Practices for Theatre and Television (3)
An investigation of the recent developments of modern staging facilities. The application of technological advances and electro-mechanical devices to the scenic arts for theatre and television. (Formerly numbered Speech Arts 243.)
244. Seminar in Stage Direction (3)
Prerequisite: Drama 127A.
Projects in the aesthetic principles and the practices of stage direction with an emphasis on styles and historic periods.
245. Seminar in Lighting for Stage and Television (3)
Prerequisite: Drama 145A or 145B.
Projects concerned with the aesthetic and the technical problems of lighting in stage. (Formerly numbered Speech Arts 245.)
246. Seminar in Design for Stage and Television (3)
The principles of design in the theatre with an emphasis on the historical development of theatrical costume or scenic environment. The investigation of recent tendencies in styles and their evolution. Each section may be taken once for credit.
A. Costume Design
Prerequisite: Drama 152A or 152B.
B. Scenery Design
Prerequisites: Drama 140A, 140B, or 148.
(Formerly numbered Speech Arts 246.)
247. Seminar in History of Theatre and Drama (3)
Prerequisites: Drama 120, 160A, and 160B.
A. British and Continental Theatre
B. American Theatre
(Formerly numbered Speech Arts 247.)
248. Seminar in Dramatic Theory (3)
Prerequisites: Drama 120, 160A, 160B, and 200.
Problems in producing works of such playwrights as Ibsen, Strindberg, Chekhov, Shaw. May be repeated once with new content for a maximum of six units. Maximum credit six units applicable on a master's degree. (Formerly numbered Speech Arts 248.)

298. Special Study (1-3)

Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)

Prerequisite: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

ECONOMICS

GENERAL INFORMATION

The Department of Economics, in the College of Arts and Letters, offers graduate study leading to the Master of Arts degree in Economics. For graduate study in connection with the Master of Arts degree in Social Science, refer to the section of this bulletin under Social Science. Research facilities provided by the Department of Economics include the Economics Research Center and the Institute of Labor Economics.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing as described in Part Three of this bulletin. In addition, students seeking the Master of Arts degree in Economics must have completed at least 18 units of upper division courses in economics including Economics 107 and either 100A-100B or 104A-104B, or their equivalents, and six units of upper division courses in economics or related fields as approved by the graduate adviser.

A student with a bachelor's degree in a field other than economics who has completed the core courses, Economics 100A-100B or 104A-104B and Economics 107, or their equivalents, may, with the consent of the Department of Economics, offer more than six upper division units in fields other than economics as part of this undergraduate preparation for admission to classified graduate standing.

ADVANCEMENT TO CANDIDACY

In addition to meeting the requirements for advancement to candidacy as described in Part Three of this bulletin, all students must take the Graduate Record Advanced Test in Economics. Reservations for this test must be made at the Test Office in the Administration Building.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units which includes a major consisting of at least 24 units in economics, of which at least 21 units must be in 200-numbered courses in economics. Economics 200A, 200B, 141, and either 299, for Plan A, or 297, for Plan B, are required courses; the remaining unit requirements may be selected from courses in economics listed below or by petition to the Department Graduate Study Committee, from 100- or 200-numbered courses offered by other departments of the college. A written comprehensive examination over course work taken for the degree is required.

ASSISTANTSHIPS

Graduate teaching assistantships in Economics are available to a limited number of qualified students. Application blanks and further information may be obtained from the Chairman of the Department of Economics.

FACULTY

Chairman, Department of Economics: R. E. Barckley, Ph.D.

Graduate Advisers: D. C. Bridenstine (Coordinator); G. K. Anderson; George Babilot; W. H. Nam; I. I. Poroy

Professors: G. K. Anderson, Ph.D.; George Babilot, Ph.D.; R. E. Barckley, Ph.D.; D. C. Bridenstine, Ph.D.; D. A. Flagg, Ph.D.; Adam Gifford, Ph.D.; C. E. Jencks, Ph.D.; J. W. Leasure, Ph.D.; J. O. McClintic, Ph.D.; E. J. Neuner, Ph.D.; Marjorie S. Turner, Ph.D.

Associate Professors: L. E. Chadwick, B.S.; N. C. Clement, Ph.D.; M. C. Madhavan, Ph.D.; I. I. Poroy, Ph.D.; J. P. Venieris, Ph.D.

Assistant Professors: J. W. Hambleton, Ph.D.; J. J. Hardesty, Ph.D.; A. E. Kartman, Ph.D.; W. H. Nam, Ph.D.; D. O. Popp, Ph.D.; F. D. Sebold, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN ECONOMICS

UPPER DIVISION COURSES

- | | |
|-----------------------------------|---------------------------------------------------|
| 105. Welfare Economics (3) | 191. International Trade Theory (3) |
| 109. Advanced Economic Theory (3) | 192. International Monetary Theory and Policy (3) |
| 141. Econometrics (3) | 194. Capital and Growth Theory (3) |

GRADUATE COURSES

- 200A. Seminar in Advanced Economic Theory (3)**
Prerequisites: Economics 104A and 104B, or 100A, 100B, and 107.
Theory of consumer and producer behavior. Determination of prices and resource allocation patterns in a market economy; partial and general equilibrium.
- 200B. Seminar in Advanced Economic Theory (3)**
Prerequisites: Economics 104A and 104B, or 100A, 100B, and 107.
Theory of money, employment, and income determination. Alternative theories of consumption, investment, price level and rate of interest. Causes of instability in short and long run.
- 201A-201B. Seminar in the Development of Economic Thought (3-3)**
Prerequisites: Twelve units in economics.
A critical study of the development of economic thought.
- 202. Seminar in Comparative Economic Systems (3)**
Prerequisites: Economics 102 or 115 or 118.
Topics in comparative economic systems; the Soviet economy, the economy of Communist China, and related subjects.
- 203. Economic Analysis (3)**
Prerequisite: Classified graduate standing.
The theory of the firm in a market economy. Not open to students with credit in Economics 100A-100B; not applicable toward a master's degree in economics.
- 206. The Public Economy (3)**
Prerequisite: Economics 131 or Public Administration 162.
Determinants of the supply and demand for public goods; the social decision-making processes in determining public goods; supply; financing public goods, taxes and expenditures; planned program budgeting and cost-benefit analysis. Not applicable toward a master's degree in economics.
- 208. Development Planning (3)**
Prerequisite: Economics 196.
Role of government in development. Choice of target and policy variables. Planning techniques and their application to national development problems.
- 210. Seminar in Economic History (3)**
Prerequisite: Economics 110 or 111A or 111B.
Individual study and group discussion on selected topics in economic history.
- 231. Seminar in Public Finance (3)**
Prerequisite: Economics 131.
Advanced study of public finance problems and literature; research.
- 235. Seminar in Monetary Economics**
Prerequisite: Economics 135.
Analysis of theoretical issues associated with the money supply and process of money creation. Emphasis upon interaction of monetary and real factors in domestic-international money and financial markets.
- 238. Seminar in Urban and Regional Economics (3)**
Prerequisite: Economics 138.
Urban and regional economics; individual research and reports.

241. **Seminar in Econometrics (3)**
Prerequisite: Economics 141
The construction of large economic models. Identification, causal ordering and estimation. Simultaneous-equation techniques and other selected topics.
250. **Seminar in Labor Economics (3)**
Prerequisite: Economics 150 or 151 or 152.
Individual study and group discussion of selected topics in labor economics.
253. **Comparative Labor Seminar (3)**
Prerequisites: Economics 150 or 153.
Research in comparative labor problems, including problems of labor and social legislation, medical economics, poverty problems, labor force structural problems, and international labor movements.
272. **Seminar in Utilities and Water Resources (3)**
Prerequisite: Economics 172 or Economics 173.
Advanced study and group discussion of selected topics in utility economics and regulation, and the economics of water resource development.
274. **Seminar in Economic Concentration and Monopoly Power (3)**
Prerequisites: Economics 174 or both Economics 170 and 100A.
Selected topics in the field of economic concentration and monopoly.
290. **Bibliography (1)**
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's thesis.
292. **Seminar in International Economics (3)**
Prerequisite: Economics 190.
Resource allocation, income distribution, commercial policies, capital movements, balance of payments, and international monetary institutions. (Formerly numbered 295.)
295. **Seminar in the Economics of Underdeveloped Countries (3)**
Prerequisite: Economics 195.
Theories regarding underdevelopment and policies for development of economically underdeveloped countries.
297. **Research (3)**
Prerequisites: Classified graduate standing and consent of instructor.
Independent research project in an area of economics.
298. **Special Study (1-3)**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.
299. **Thesis (3)**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

EDUCATION

GENERAL INFORMATION

The School of Education offers graduate study leading to the Master of Arts degree in Education with concentrations in the following: instructional media, elementary curriculum and instruction, secondary curriculum and instruction, administration, supervision, counseling, special education, and educational research. Some of these concentrations are designed to permit concurrent completion of the requirements for the correspondingly named advanced credentials.
Graduate study is also offered leading to the degree, Master of Science in Counseling.

MASTER OF ARTS DEGREE IN EDUCATION

ADMISSION TO THE GRADUATE DIVISION

The student must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division. In addition, the student must have completed a minimum of 12 units in professional education courses, and he must either be admitted to the program of teacher education or hold a valid California credential, other than an emergency or provisional credential, before he will be recommended by the school for classified graduate standing.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE IN EDUCATION

In addition to meeting the requirements for admission to the Graduate Division with classified graduate standing and the credential requirements as applicable, the student must satisfy the basic requirements for the master's degree, described in Part Three of this bulletin. In addition, the student must complete a minimum of 18 units in one of the concentrations in education. Education 211 and either Education 299 or Education 295A-295B are required courses. All applicants for the Master of Arts degree in Education must pass a comprehensive examination and satisfactorily complete either a thesis (Plan A) or two writing seminars (Plan B). In addition, students majoring in certain concentrations are required to verify successful teaching experience, and to satisfy requirements for advanced credentials. See below for further information regarding each of the concentrations.

ADVANCEMENT TO CANDIDACY

A student desiring a Master of Arts degree in Education with a concentration in instructional media, elementary curriculum and instruction, or secondary curriculum and instruction may be advanced to candidacy upon completion of the basic requirements as described in Part Three of this bulletin, section on master's degree, and upon satisfactory completion of the qualifying examination (see above). A student desiring a concentration in administration, supervision, or counseling, must, in addition to the above, meet specific requirements for admission to the appropriate advanced credential program. A student desiring a master's degree concentration in special education must also meet specific admission requirements. (For further information, refer to the School of Education, Office of Advanced Credentials, Room 179.)

The Comprehensive Examination

This examination, designed to evaluate the student's achievement in the specific area of his concentration, is required of all candidates for the master's degree in education. A student is eligible to take the comprehensive only if he has been advanced to candidacy.

This year this examination will be given on November 6, 1971, and on March 11, 1972. Reservations must be made at least a week in advance in the Office of Advanced Credentials, School of Education, Room 179.

SELECTION OF PLAN A OR PLAN B

In general, applicants will be programed for Plan B, the seminar plan. After the student has completed approximately half of his program for the degree, he may request permission to transfer to Plan A, the thesis plan, if he has by this time established a plan for his thesis and has secured a faculty adviser for it. Requests for transfer to Plan A must be prepared as an official change in program for the master's degree and countersigned by the faculty adviser and then submitted to the Office of Advanced Credentials in the School of Education.

In general, Plan A is designed for students who have a particular research problem they wish to investigate in some detail. It is also recommended for students who plan eventually to secure the doctorate. Plan B, requiring a comprehensive examination in lieu of thesis, provides an opportunity (1) to have two experiences of a writing and research nature, (2) to participate actively in the research projects of the other members of the seminar, and (3) to subject his own research to critical evaluation by the other seminar members. Both plans require the ability to formulate and define research problems, to assemble data pertinent to the problem, to draw conclusions and to present the study in adequate written form. It is expected that the two seminars will be at least as demanding as the thesis with respect to the difficulty and quantity of work required.

Course Requirements

Note: Students are requested to consult with the appropriate master's degree adviser prior to taking any course work leading to the Master's degree. Students are urged to take Education 211 (3 units) as early as possible in their first graduate year.

CONCENTRATIONS

Elementary Curriculum and Instruction

The Master of Arts degree in Education with a concentration in elementary curriculum and instruction is designed to increase professional competence in the form of more breadth, depth, and technical skill in curriculum and instruction, either generally or in selected areas of specialization. Course requirements are as follows:

1. Prerequisite: A basic background in education (minimum of 12 units) to include curriculum and methods, child growth and development, tests and measurements, educational psychology, and history and philosophy of education.
2. Education 211, Procedures of Investigation and Report (3 units).
3. Core program (15 units). The core is composed of courses in education, and related fields selected with the approval of the adviser on the basis of the student's interests and goals, and his needs as evidenced by results on the qualifying examination. A minimum of 9 units of education shall be taken in courses at the 200-level.
4. Electives (6-9 units) selected with the approval of the adviser.
5. Special Study and Research (3-6 units): Education 295A-295B, Seminar (6 units), or Education 299, Thesis (3 units).

Secondary Curriculum and Instruction

The Master of Arts degree in Education with a concentration in secondary curriculum and instruction is designed to assist the applicant in improving performance in his roles as a classroom teacher. Twelve units in basic education courses are prerequisite to the program. Course requirements are as follows:

1. Education 211, Procedures of Investigation and Report (3 units).
2. Core program (15 units). The core is composed of courses in education and related fields selected with the approval of the adviser on the basis of the student's interests and goals, and his needs as evidenced by results on the qualifying examination. A minimum of 9 units in education must be taken in courses at the 200-level.
3. Electives (6-9 units) selected with the approval of the adviser.
4. Research (3-6 units). Education 295A-295B, Seminar (6 units), or Education 299, Thesis (3 units).

Instructional Media

The Master of Arts degree in Education with a concentration in instructional media requires twelve units in basic education courses as prerequisites to the program, and the following courses:

1. Education 211, Procedures of Investigation and Report (3).
2. Core program (18 units) to include: (a) Education 240, Curriculum Construction and Evaluation in Elementary Education, or Education 250, Curricular Problems in Secondary Education; (b) nine units as follows: Education 141, Producing Instructional Materials; Education 274A, Seminar in Media Utilization; and Education 275, Seminar in the Administration of Instructional Media Centers; (c) A minimum of three units from the following: Industrial Arts 183, Materials and Techniques for Teaching Graphic Arts; Industrial Arts 185, Photography for Teachers; Industrial Arts 186, Advanced Photography; Education or Telecommunications and Film 143S, Workshop in Educational Television; selected courses in Library Science; and Education 298, Special Study; (d) Education 375, Directed Internship.
3. Electives (3-6 units)
4. Additional required courses (3-6 units): Education 295A-295B, Seminar; or Education 299, Thesis.

Administration and Supervision

In the concentration of school administration and supervision the master's degree is designed to provide increased knowledge and skill for the prospective administrator. This degree is built upon and coordinated with the Standard Supervision credential at either the elementary or secondary specialization levels. The student who wishes to work for this degree must complete the appropriate course requirements for this credential prior to, or concurrently with the receipt of the degree. Course requirements follow:

1. Prerequisite: Possession of (1) a valid standard teaching credential, standard designated subjects teaching credential or a standard designated services credential or (2) a basic teaching credential issued or renewed by the State of California prior to September, 1966.
2. Education 211, Procedures of Investigation and Report (3 units)
3. The administrative core program: (12 units)
Education 260, Principles of School Administration
Education 261, Educational Leadership.
Education 262, Legal and Financial Aspects of School District Policies
Education 263, (or Education 240 or Education 250), Curriculum Development and Evaluation
4. Advanced Seminars and Field Work: (9 units)
 - a. Elementary Specialization
Education 264A, 264B, 264C, Seminars in Elementary School Administration and Supervision
Education 266A, 266B, 266C, Field Experience in Elementary School Administration and Supervision
or
 - b. Secondary Specialization
Education 265A, 265B, 265C, Seminars in Secondary School Administration and Supervision
Education 267A, 267B, 267C, Field Experiences in Secondary School Administration and Supervision
5. Research (3-6 units) Education 295A-295B, Seminars, or Education 299, Thesis.
6. Electives (0-3 units) selected with the approval of the adviser.

Advanced seminars require admission to the program of Administration and Supervision, Department of Administration and Supervision. For further information the student is referred to the Office of Advanced Credentials, School of Education, Room 179.

Counseling

The Master of Arts degree in Education with a concentration in counseling is designed for persons with a background in professional education who want to specialize in pupil personnel services and school counseling. Generally the degree program is taken in conjunction with work towards the Standard Designated Services Credential with specialization in pupil personnel services.

Prerequisite is a basic background in education (minimum of 12 units). Required are Education 211 (3 units) and either Education 299 (3 units) or Education 295A-295B (6 units) plus additional units to equal a minimum total of thirty units in counselor education or related areas to be selected with the approval of the graduate adviser. A student who wishes to work towards this degree must be admitted to the Counselor Education Program. For further information, the student is referred to the Office of the Department of Counselor Education, School of Education, Room 179. For admission to this program refer to admission to the Master of Science in Counseling degree below.

(A student who has completed the program leading to the Master of Science in Counseling degree will not be eligible for admission to the program leading to the Master of Arts degree in Education with a concentration in counseling.)

Special Education

The Master of Arts degree in Education with a concentration in special education is designed to assist the applicant in improving performance in his roles as a classroom teacher. With adviser's approval, in this 30-unit program, up to 12 units (Plan B) or up to 15 units (Plan A) of electives may be chosen from courses in the elementary, secondary and special education departments, and related academic departments.

1. Prerequisite: A basic background in education (minimum of 12 units) to include such courses as curriculum and methods, educational psychology, growth and development, and history and philosophy of education.
2. Education 211, Procedures of Investigation and Report (3 units).
3. Core program (9 units) to include: Education 220, Advanced Educational Psychology; Education 270, Seminar in Education of Exceptional Children; and a 200 level education course in area of specialty.
4. Electives selected with adviser's approval.
5. Additional required courses (3-6 units): Education 295A-295B, Seminars, or Education 299, Thesis.

Educational Research

The Master of Arts degree in Education with a concentration in educational research is designed to prepare students having a basic background in education to conduct measurement, research, and evaluation activities at a professional level. Emphasis is upon preparation for research activities at the school district level.

1. Prerequisite: A basic background in education (a minimum of 12 units of professional education) including at least one course in tests and measurement.
2. Education 211, Procedures of Investigation and Report (3 units).
3. Core program (12 units): Education 221, Seminar in Educational Measurement; Education 153, Quantitative Methods in Education; Education 212, Research Design; Education 213, Advanced Quantitative Methods in Education.
4. Electives (12 units): Selected with adviser's approval.
5. Education 299, Thesis.

MASTER OF SCIENCE IN COUNSELING DEGREE

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing as described in Part Three of this bulletin. In addition the student must be admitted to the Counselor Education Program in the Department of Counselor Education. Criteria for admission require that the student submit evidence in written form and through interviews demonstrating personal, professional, and academic adequacy for the Master of Science in Counseling degree. Only students who show reasonable promise of success in counseling as a career will be admitted to this curriculum.

(A student who has completed the program leading to the Master of Arts degree in Education with a concentration in counseling, will not be eligible for admission to the program leading to the degree, Master of Science in Counseling.)

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for classified graduate standing as described in Part Three of this bulletin, and for advancement to candidacy, the student must also meet the following requirements:

1. Education 211, 239A, and 239B or equivalent.
2. At least nine units of work from each of the following groups of courses:
First level: Education 115, 167, 211, 225A, 225B, 226, and 230.
Second level: Education 231, 232, 233, and 234 (or 237 and 238).
Third level: Education 239A, 239B, 330, 331, 332, 333, Psychology 204, and 205.
3. Successful completion of a program consisting of at least thirty-six units of approved course work.

ADVANCEMENT TO CANDIDACY

The student must satisfy the general requirements for advancement to candidacy as described in Part Three of this bulletin. In addition, the student must maintain continued good standing in the Counselor Education Program (for further information, refer to the Department of Counselor Education, School of Education, Room 179).

The Comprehensive Examination

A comprehensive examination for Plan B is required. The student must demonstrate satisfactory performance on a comprehensive examination in lieu of a thesis, prepared by the Department of Counseling and Guidance.

Reservations for the examination must be made in advance in the Office of Advanced Credentials, School of Education, Room 179.

PROGRAM FOR REHABILITATION COUNSELORS

Students desiring to complete the program for rehabilitation counselors will complete the requirements for the Master of Science in Counseling and additional special requirements arranged by the Director of Rehabilitation Counselor Education. Further information on this program may be obtained from Dr. John L. Schmidt, School of Education.

THE STANDARD TEACHING CREDENTIAL WITH A SPECIALIZATION IN COMMUNITY COLLEGE TEACHING

Admission Requirements

Students holding an appropriate master's or higher degree must, in addition, be admitted to the credential program before they are eligible to take the professional education courses. Students who plan to obtain the master's degree and this credential must be admitted to the Graduate Division and must, in addition, be admitted to the credential program.

The requirements for admission to the credential program are essentially the same as those for secondary teaching credentials except that applicants must hold the bachelor's degree. For additional information, see the Coordinator of Community College Programs, Room 124, Education Building.

The basic requirement for the credential is only the obtaining of a master's degree, preferably in an academic area which is taught in a community college. However, it is urged that candidates enroll in the professional courses in teacher education in order to enhance their employment possibilities, as most community colleges require professional preparation and experience. A teaching minor, although not required, is highly desirable. (A minor is defined as a minimum of twelve semester hours of upper division courses in an academic field.)

Basic Requirements

To qualify for The Standard Teaching Credential with a Specialization in Community College Teaching at San Diego State a student must:

- (a) Hold a master's degree or a higher degree in a subject matter field commonly taught in a community college; or
- (b) Hold a master's degree in a non-academic subject and a teaching minor of 20 units in a single academic subject. Twelve of the 20 units must be in upper division courses.

Professional Preparation

The following areas of preparation are suggested to enhance employment prospects:

- (a) Complete prescribed courses in professional education, including directed teaching, and
- (b) Fulfill requirements for a teaching minor.

Some departments have developed programs permitting students to obtain the master's degree and to meet the professional education requirements in a full year of full-time graduate study. The courses in professional education are typically offered in the summer and after four o'clock in regular semesters.

Professional Courses in Teacher Education

Prerequisite: Admission to the credential program.

Ten semester hours of professional education are required:

- Education 201. The Community College (2)
Education 223. Educational Psychology: Community College (2)
Education 251. Instructional Methods and Materials: Community College (2)
Education 316. Directed Teaching (4)

Directed teaching can be accomplished only in a community college assignment.

SCHOLARSHIPS

The following scholarships are available to graduate students in education.

SAN DIEGO TEACHERS ASSOCIATION. Awarded to two students preparing for teaching. \$100 each per year.

CALIFORNIA CONGRESS OF PARENTS AND TEACHERS, INC. Awarded to a fifth-year student in training for the General Secondary Credential. \$400 per year.

FACULTY

Dean of the School of Education: M. H. Schrupp, Ph.D.

Associate Dean of the School of Education: F. A. Ballantine, Ph.D.

Coordinator of Elementary Education: R. R. Nardelli

Coordinator of Secondary Education: Sigurd Stautland

Coordinator of Educational Administration: H. B. Holt

Coordinator of Counselor Education: Paul Bruce

Coordinator of Special Education Studies: Shirley E. Forbing

Coordinator of Community College Programs: R. D. Smith, Jr.

Coordinator of Library Science: T. W. McAllister

Coordinator of Graduate Programs in Education: Ramon R. Ross

Graduate Advisers:

Elementary Curriculum and Instruction: J. E. Inskip

Secondary Curriculum and Instruction: C. E. Fishburn

Instructional Media: H. R. Smith

Elementary Administration and Supervision: H. B. Holt

Secondary Administration and Supervision: H. B. Holt

Counseling (Master of Arts): Paul Bruce

Special Education: A. J. Mitchell

Educational Research: D. H. Ford

Counseling (Master of Science): Paul Bruce

Professors: E. L. Anderson, Ed.D.; P. S. Anderson, Ph.D.; J. A. Apple, Ed.D.; D. L. Baker, Ed.D.; F. A. Ballantine, Ph.D.; R. M. Briggs, Ed.D.; Paul Bruce, Ph.D.; Marguerite A. Brydegaard, Ph.D.; C. M. Charles, Ph.D.; C. E. Crum, Ed.D.; Paul Erickson, Ed.D.; C. E. Fishburn, Ed.D.; J. S. Fisher, Ph.D.; Kurt Friedrich, Ed.D.; E. G. Fulkerson, Ed.D.; G. F. Gates, Ed.D.; P. C. Gega, Ed.D.; R. T. Gray, Ed.D.; P. J. Groff, Ed.D.; Philip Halfaker, Ed.D.; W. O. Hill, Ed.D.; H. B. Holt, Ed.D.; H. E. Huls, Ph.D.; J. J. Hunter, Jr., Ph.D.; J. E. Inskip, Ph.D.; W. L. Kendall, Ph.D.; M. H. La Pray, Ph.D.; Charles Lienert, Ed.D.; D. D. Malcolm, Ph.D.; R. L. Miller, Ph.D.; R. R. Nardelli, Ph.D.; G. A. Person, Ph.D.; M. H. Pettys, Ed.D.; M. H. Platz, Ed.D.; Helen L. Prouty, Ph.D.; J. A. Rodney, Ph.D.; M. K. Rowland, Ph.D.; R. R. Ross, Ed.D.; J. L. Schmidt, Ph.D.;

M. H. Schrupp, Ph.D.; J. R. Schunert, Ph.D.; R. E. Servey, Ph.D.; Arthur Singer, Jr., Ph.D.; H. R. Smith, Ph.D.; R. D. Smith, Ph.D.; Marguerite R. Strand, Ph.D.; Leila V. Tossas, Ed.D.; R. L. Trimmer, Ph.D.; W. H. Wetherill, Ph.D.; J. H. Wilding, Ed.D.

Associate Professors: Sally M. Anthony, Ed.D.; E. D. Baldwin, Ed.D.; L. A. Becklund, Ph.D.; Sam Blanc, Ed.D.; R. J. Burian, Ed.D.; M. A. Clark, Ed.D.; E. J. Cummins, Ph.D.; Rosalie C. Elliot, Ph.D.; Lief Fearn, Ed.D.; D. H. Ford, Ed.D.; D. K. Gast, Ph.D.; R. A. Goodson, Ed.D.; Peggy J. Hawley, Ph.D.; H. E. Heusser, Jr., Ed.D.; O. J. LuPone, Ph.D.; Q. D. McClard, Ph.D.; Leone McCoy, Ph.D.; Doris A. Meek, Ed.D.; Joseph Melton, Ed.D.; A. J. Mitchell, Ed.D.; J. N. Retson, Ed.D.; A. C. Smith, Ed.D.; Sigurd Stautland, Ph.D.; M. J. Steckbauer, Ed.D.; D. W. Strom, Ed.D.; M. Agnes Walsh, M.A.; J. T. Warburton, Ed.D.

Assistant Professors: G. J. Becker, Ph.D.; Clifford Bee, Ph.D.; Marlowe Berg, Ph.D.; Aileen J. Birch, M.A.; Patricia Botkin, Ed.D.; W. W. Bradley, M.A.; H. M. Burnside, Ph.D.; J. P. Carnevale, Ph.D.; J. D. Chanley, Ed.D.; Alice J. Cochran, M.A.; D. H. Doorlag, Ph.D.; J. B. Duckworth, Ed.D.; A. W. Edgemon, Ed.D.; Shirley E. Forbing, Ph.D.; P. J. Harrison, Ph.D.; Dorothy J. Holman, Ed.D.; J. M. Kaatz, M.A.; Thelma Manjos, Ph.D.; R. E. McCabe, Ph.D.; John McLevie, Ph.D.; J. D. Mooers, Ed.D.; Joyce Morris, Ph.D.; William Morris, Ph.D.; Monica Murphy, Ph.D.; T. S. Nagel, Ph.D.; R. B. Pehrson, Ph.D.; P. T. Richman, Ed.D.; R. L. Sanner, Ph.D.; L. J. Shaw, Ed.D.; Gordon Thompson, M.A.; G. H. Treadway, Ph.D.; Librado Vasquez, Ph.D.; Charlotte Yesselman, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN EDUCATION

UPPER DIVISION COURSES IN EDUCATION

- | | |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 114. Interpretation of Early Childhood Behavior (3) | 153. Quantitative Methods in Educational Research (3) |
| 115. Guidance in Elementary Education (3) | 161. Measurement and Evaluation in Special Education (4) |
| 118. Supervision of Child Welfare and Attendance (3) | 162. Emotionally Disturbed Children and Youth (3) |
| 122. Reading in Secondary Education (3) | 163. Curriculum and Methods for Teaching Emotionally Disturbed Children and Youth (3) |
| 126. Workshop in Secondary Education (3 or 6) | 164. Education of the Neurologically Handicapped (3) |
| 130A. Arithmetic (2 or 3) | 167. Exceptional Children (3) |
| 130B. Language Arts (2 or 3) | 168. Curriculum and Methods for Teaching Mentally Retarded Children in the Elementary School (3) |
| 131A. Reading (2 or 3) | 169. Curriculum and Methods for Teaching Mentally Retarded Children in the Secondary School (3) |
| 131B. Social Studies (2 or 3) | 170. Workshop in Special Education (3) |
| 132A. Science (2 or 3) | 172. Counseling Exceptional Children (3) |
| 132B. Art (2 or 3) | 173. Education of the Severely Mentally Retarded (3) |
| 132C. Music (2 or 3) | 174. Principles and Methods of Speech Correction (3) |
| 133. Children's Literature in Elementary Education (3) | 176. Stuttering and Neurological Disorders (3) |
| 135. Workshop in Elementary Education (3 or 6) | 177. Audiometry: Principles (3) |
| 137. Reading Difficulties (3) | 178A. Communication Skills for the Deaf (3) |
| 138B. Social Studies Unit Construction in Elementary Education (3) | 190. Conference on the Teaching of Mathematics (1) |
| 141. Producing Instructional Materials (3) | 191. Guidance Conference (1) |
| 143S. Workshop in Educational Television (6) | 192. Audiovisual Conference (1) |
| 144. Application of Programed Instruction (3) | |
| 151. Measurement and Evaluation in Elementary Education (3) | |
| 152. Measurement and Evaluation in Secondary Education (3) | |

GRADUATE COURSES IN EDUCATION

Students with undergraduate standing are not admitted to 200-numbered courses in Education. For other requirements refer to the statement of prerequisites for graduate courses at the beginning of Part Four of this bulletin.

In addition to these general requirements, 12 units of professional education are prerequisite for enrollment in all graduate courses, except Education 201, 223, and 251, which require special clearance from the Coordinator of Community College Programs; and courses in Counselor Education.

Sociological Foundations

201. The Community College (2)

Overview of philosophy, history, aims, scope, function, outcomes, principles and problems of the community college. Relation of the community college to elementary and secondary schools and to four-year colleges. Fieldwork, including observation and audiovisual experiences, required.

202. Social Foundations (2 or 3)

Prerequisite: Education 131C.

Sociological, historical, and philosophical foundations of American Education and their influences on present-day educational practices.

204. Comparative Education (3)

The contemporary educational ideas and practices of various countries of the world and their impact upon our culture and education.

205. History of Education (3)

Prerequisite: Education 100 or 101.

Advanced study of the history of education with emphasis on educational practices as related to present-day problems.

206. Philosophy of Education (3)

Prerequisite: Education 100 or 101.

Advanced study of philosophical backgrounds of educational thought; a study of comparative philosophies, and an analysis of selected current trends and problems.

207. Educational Sociology (3)

Prerequisite: Education 100 or 101.

A study of the social, economic, political and moral setting in which present-day American education functions.

208. Workshop in Community Influences on Learning and Curriculum Planning (3 or 6)

Prerequisite: Teaching experience.

Advanced study of community influences on learning and child growth and development, and of group techniques; implications for curriculum planning. Provides opportunity for work on individual problems of the participants.

209. Workshop in Community College Education (2-6)

Prerequisite: Teaching or administrative experience in a community college.

To provide community college faculty members with opportunities to explore ways to improve curriculum and instruction in the community college.

Procedures of Investigation

211. Procedures of Investigation and Report (3)

Research methods in education. Location, selection, and analysis of professional literature. Methods of investigation, data analysis, and reporting. Required of all applicants for advanced degrees in education. (Formerly Education 290A-290B.)

212. Educational Research Design (3)

Prerequisite: Education 211.

Principles and methods of planning and conducting systematic investigations of educational problems—including historical, descriptive, and experimental methods of research. Practice in the definition of problems, formulation of hypotheses, construction of samples, control of variables, and interpretation of results.

213. Advanced Quantitative Methods in Educational Research (3)

Prerequisite: Education 153.

Application of correlation and tests of significance, including nonparametric and multivariate techniques, to research designs in such areas as curriculum, human development, student learning, counseling, and administration.

Educational Psychology

220. Advanced Educational Psychology (3)

Prerequisite: Education 110 or 112.

Advanced study of the research and its application to learning and human growth.

221. Seminar in Educational Measurement (3)

Prerequisite, one of the following: Education 120, 151, 152.

Problems in educational testing. Emphasis upon construction, administration, and validation of teacher-made tests.

222. The Gifted Child (3)

Prerequisites: Education 110, or 111 and 112.

The abilities and characteristics of the intellectually gifted or talented; related problems of curriculum, teaching, administration and guidance.

223. Educational Psychology: Community College (2)

Fieldwork required.

Prerequisite: Credit for or concurrent registration in Education 201.

The nature of the community college student; the learning process including contributions of audiovisual materials. The functions of student personnel services in the community college.

Counselor Education

224. Administration of Pupil Personnel Services (3)

Prerequisite: Education 230.

The organization and administration of school guidance services, including the use of community resources and a study of laws relating to children and child welfare.

225A-225B. Determinants of Human Behavior (3-3)

Implications of theory and research in behavioral sciences for the understanding of human behavior. Education 225A deals with personality theories and psychological determinants of behavior; 225B with social and cultural determinants.

226. Guidance Services in Public Education (3)

Prerequisite: Education 110, or Education 111 and 112.

Historical, philosophical, and legal bases of the pupil personnel services; staff roles and relationships in a variety of organizational patterns.

229. Workshop in Counseling (3)

Prerequisite: Consent of instructor of workshop.

Application of principles and procedures to specific situations for improvement of counseling services. Individual problems emphasized.

230. Guidance Problems in Secondary Education (3)

Prerequisites: Education 110 or equivalent, and student teaching or teaching experience.

The theory and practice of guidance emphasizing advanced mental hygiene concepts needed by teachers and counselors.

231. Theory and Process of Appraisal (4)

Three lectures and three hours of laboratory.

Measurement theory and procedures, including interpretation of test results. Not open to students with credit in Education 237. Offered during summer sessions only in combination with Education 232 as Education 237.

- 232. Theory and Process of Vocational Choice (4)**
 Three lectures and three hours of laboratory and/or field work.
 Vocational choice theory, occupational and educational materials used in career planning. Not open to students with credit in Education 237. Offered during summer sessions only in combination with Education 231 as Education 237.
- 233. Theory and Process of Counseling (4)**
 Prerequisites: Education 225A and 231.
 Counseling process theories, approaches to and techniques for counseling, and research concerning counseling effectiveness. Supervised practice in counseling, analyzing counseling, and writing counseling reports. Not open to students with credit in Education 238 or Psychology 152 or Psychology 233. Offered during summer sessions only in combination with Education 234 as Education 238.
- 234. Theory and Process of Group Counseling (4)**
 Three lectures and three hours of laboratory.
 Prerequisites: Education 225B and 233.
 Group process and individual growth, theories of group interaction, sensitivity training and group leadership techniques. Not open to students with credit in Education 238. Offered during summer sessions only in combination with Education 233 as Education 238.
- 237. Appraisal and Vocational Choice (6)**
 Five lectures and three hours of laboratory.
 Measurement theory, interpretation of test results, vocational choice theory, occupational and educational information in career planning. Not open to students with credit in Education 231 or 232. Application to take the course must be made early during the preceding semester. Offered only during summer sessions.
- 238. Counseling: Individual and Group (6)**
 Five lectures and three hours of laboratory.
 Counseling theory and techniques, individual and group. Not open to students with credit in Education 233 or 234. Application to take the course must be made early during the preceding semester. Offered only during summer sessions.
- 239A-239B. Professional Seminar in Guidance (3-3)**
 Prerequisites: Education 211; six units from Education 231, 232, 233, and 234 or equivalent.
 Study of selected areas in counseling and guidance culminating in a written project with emphasis on research and on counseling as a profession.
- Elementary Education*
- 240. Curriculum Construction and Evaluation in Elementary Education (3)**
 Prerequisite: Credit or concurrent registration in Education 211.
 Advanced study of the research in curriculum development, construction, and evaluation.
- 241. Seminar in Arithmetic in Elementary Education (3)**
 Prerequisites: Credit or concurrent registration in Education 211.
 A study of research and practice in the methods of teaching and in the curriculum of elementary and junior high school arithmetic.
- 242. Seminar in Reading in Elementary Education (3)**
 Prerequisites: Credit or concurrent registration in Education 211.
 Advanced study of trends in reading instruction. Topics include developmental sequences in reading skills and abilities, reading in the content fields, individual differences, and interests. Students will develop individual projects or problems.
- 243A. Seminar in Social Studies in Elementary Education (3)**
 Prerequisite: Credit or concurrent registration in Education 211.
 Problems in teaching social studies in the elementary school with emphasis on the study of the scientific research in the field. (Formerly numbered Education 243.)

- 243B. Seminar in Elementary Social Studies Curriculum Development (3)**
 Prerequisite: Education 131B, and credit or concurrent registration in Education 211.
 Current theories of instruction pertaining directly to elementary social studies teaching and curriculum development; critique of current social studies courses of study and guides; experience in elementary social studies curriculum planning at the classroom, school, and district levels.
- 244. Seminar in Language Arts in Elementary Education (3)**
 Prerequisites: Credit or concurrent registration in Education 211.
 Advanced study of problems in teaching language arts in the elementary school, including spelling, literature and written and oral communication. Emphasis will be on the study of scientific research in the field.
- 245. Seminar in Elementary Education (3)**
 Prerequisites: Credit or concurrent registration in Education 211.
 A study of the methodology of research with particular reference to the basic research in the psychology and teaching of the elementary school subjects.
- 246. Advanced Diagnosis in Reading (3)**
 Prerequisites: Psychology 204 and Education 137, or consent of instructor.
 Principles and techniques of individual and group diagnosis of reading difficulties. Experience in administration and interpretation of individual and group instruments in diagnosis.
- 247. Advanced Diagnosis and Treatment of Learning Difficulties (3)**
 Prerequisites: A teaching credential and Education 151 or 152.
 Principles and techniques of diagnosis and treatment of difficulties in learning the school subjects. Supervised experience in working with individual pupils and their parents.
- 248. Seminar in Science in Elementary Education (3)**
 Prerequisites: Credit or concurrent registration in Education 211.
 Advanced study of the problems of teaching science in the elementary school with emphasis on the literature of science education.
- 249A. Seminar in Art in Elementary Education (3)**
 Prerequisite: Education 132B, credit or concurrent registration in Education 211.
 Curriculum, materials, and techniques of instruction, including supervision.
- 249B. Seminar in Music in Elementary Education (3)**
 Prerequisite: Education 132C, credit or concurrent registration in Education 211.
 Methods, materials, and curriculum. For elementary classroom teachers.
- Secondary Education*
- 250. Curricular Problems in Secondary Education (3)**
 Prerequisite: Student teaching or teaching experience.
 Present status and development of the secondary school curriculum with emphasis upon curriculum construction and curriculum evaluation. Opportunities provided for study of problems submitted by students.
- 251. Instructional Methods and Materials: Community College (2)**
 Prerequisites: Education 223 and concurrent registration in Education 316.
 The teaching process at the community college level, including lesson planning, utilization of audiovisual and other instructional materials and procedures of evaluation.
- 252. Seminar for Student Teachers (3)**
 Prerequisites: Education 110 and 100. To be taken concurrently with Education 180C.
 Advanced study in the application of principles and research related to planning instruction, selecting and using materials, evaluating instruction and pupil progress, maintaining class morale; school law and finance for classroom teachers.

253. Supervision of Student Teaching (2)

Open to experienced teachers interested in the teacher education program. Study of selection, orientation, induction, counseling and evaluation of credential candidates and student teachers; helping student teachers plan lessons, conduct classroom learning, analyze pupils' difficulties and achievement.

254. Advanced Problems in Secondary School Instruction (3)

Prerequisites: Teaching experience and consent of instructor.
An analysis of the scientific research and philosophical principles in secondary school instruction.

255A. Advanced Curriculum and Instruction in Mathematics (3)

Prerequisite: Education 121F and teaching experience.
Factors directing the changing mathematics curriculum; recent trends and current research in the teaching of secondary mathematics.

255B. Advanced Curriculum and Instruction in Social Science (3)

Prerequisite: Education 121M and teaching experience.
Theories of content selection; social pressures which affect curriculum design; current research in curriculum development; trends in teaching techniques and materials.

255C. Advanced Curriculum and Instruction in English Language and Composition (3)

Prerequisites: English 191, 192, 193, Education 121B, and teaching experience.
Problems in the teaching of English language structure and composition skills in secondary schools; recent trends and current research.

255D. Advanced Curriculum and Instruction in Literature (3)

Prerequisites: Education 121B, 12 units of literature, and teaching experience.
Problems of selection, presentation, motivation, and evaluation in the teaching of literature in secondary schools, techniques of reading in the genres; recent trends and current research in the teaching of literature.

256. Recent Trends in Secondary Curriculum (3)

Prerequisites: 12 units in secondary education and consent of the instructor.
Current practices and trends in secondary schools. Extensive individual work on related problems of interest to members of the class.

257. Workshop in Intercultural Education (4)

Enrollment only by application to the Chairman of the Department of Education.
A co-operative workshop sponsored by the college and the San Diego City Schools to study trends in intercultural education in American schools, including units, curricular and instructional materials and techniques.

258. Research in Curricular Problems (1-3)

Admission by consent of the Coordinator of Secondary Education and instructor.
Individual study by graduate students who have demonstrated exceptional ability and a need for such work.

School Administration and Supervision

260. Principles of School Administration (3)

Federal, state and local school administrative relationships including the financial and legal structure at these three levels.

261. Education Leadership (3)

Prerequisites: Standard Teaching Credential and consent of instructor.
Concepts and techniques of leadership, analysis of the factors and practice in the procedures of group and individual leadership in four areas: (a) the community; (b) the teaching staff; (c) the student personnel; (d) the professional field of educational administration and supervision. (Formerly Education 278.)

262. Legal and Financial Aspects of School District Policies (3)

Prerequisite: Standard Teaching Credential.
Relationship of the school district to attendance units. The legal basis for policy formation in the selection and retention of certified personnel, in the admission and assignment of pupils, in the instructional programs and in related budgetary considerations.

263. Curriculum Development and Evaluation (3)

Prerequisites: Standard Teaching Credential and consent of instructor.
Curriculum development in both elementary and secondary schools, with emphasis on interrelationships between these levels, responsibilities of curricular and supervisory personnel, and use of research.

264A-264B-264C. Seminar in Elementary School Administration and Supervision (2-2-2)

Prerequisites: Education 260, 261, 262, 263, consent of instructor, and admission to Program of Educational Administration.
Analysis of theories and practices in the administration and supervision of the elementary school.

265A-265B-265C. Seminar in Secondary School Administration and Supervision (2-2-2)

Prerequisites: Education 260, 261, 262, 263, consent of instructor, and admission to Program of Educational Administration.
Analysis of theories and practices in the administration and supervision of the secondary school.

266A-266B-266C. Field Experience in Elementary School Administration and Supervision (1-1-1)

Prerequisite: Concurrent registration required in Education 264A, 264B, 264C.
Field experience in the elementary schools. Approval of local school district required in the semester prior to registration.

267A-267B-267C. Field Experience in Secondary School Administration and Supervision (1-1-1)

Prerequisite: Concurrent registration required in Education 265A, 265B, 265C.
Field experience in the secondary schools. Approval of local school district required in the semester prior to registration.

268. Seminar in School Administration and Supervision (3)

Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, consent of instructor, and admission to Program of Educational Administration.
School administration and supervision in a specialized field, such as the junior college, a subject field, or designated services. Field experience required. May be substituted for Education 264C or 265C.

270. Seminar in Education of Exceptional Children (3)

Prerequisite: Education 167.
Principles, trends and research in the education of exceptional children.

271. Seminar in Emotionally Disturbed Children and Youth (3)

Prerequisites: Education 162 or 163, and 270.
Advanced study of the theories, principles and practices in working with emotionally handicapped.

272. Seminar in Education of the Gifted (3)

Prerequisites: Education 222 and 270.
Review of studies and investigation in learning and adjustment of the gifted, including assessment, classification, curriculum provisions, and social and emotional adjustment.

273. Seminar in Education of the Mentally Retarded (3)

Prerequisites: Education 168 or 169 and 270.
Review of studies and investigation in learning and adjustment of retarded children including etiology, classification, diagnosis, and assessment.

- 274A. Seminar in Instructional Media Utilization (3)**
Prerequisite: Education 140.
Review of research in instructional media utilization.
- 275. Seminar in the Administration of Instructional Media Centers (3)**
Prerequisite: Education 140.
Organization, supervision, and coordination of instructional media centers.
- 276. Seminar in Programed Instruction (3 to 6)**
Prerequisite: Education 144.
Theories of programed instruction, with emphasis on construction of programs; application to teaching situations. Analysis and revision of programed projects.
- 280. Legal and Financial Aspects of School District Management (3)**
Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.
Principles and practices of law and finance as an aspect of school business administration, school plant planning and development, and the operation and maintenance of school facilities and services.
- 281. School-Community Relationships (3)**
Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.
Sociological aspects of school administration with particular emphasis on broad social policy, contemporary issues, community-school relationships, other social and service agencies of the community.
- 282. School District Personnel Management (3)**
Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.
Personnel relationships to include administrative relationships with the Board of Education and the school staff. Central office personnel procedures including recruitment, employment, placement, evaluation, promotional and training procedures.
- 283. District Curriculum Development, Evaluation and Improvement (3)**
Prerequisites: Standard Teaching Credential, Education 260, 261, 262, 263, and consent of instructor.
School District Curricular development from kindergarten through junior college, relationships of the superintendent and central administrative staff to regular staff and supervisory staff.
- 284. Advanced Seminar in School Administration and Supervision (3)**
Prerequisites: Standard Teaching Credential, Education 280, 281, 282, 283, and consent of instructor.
An intensive study of a selected area in school administration and supervision. May be repeated with new content for additional credit to a maximum of nine units. Typical courses in this area are School Law, School Finance, School Supervision, Personnel Procedures.
- 286A-286B. Seminar in School Building Construction and Utilization (3-3)**
Prerequisite: Possession of Standard Administration or Supervision Credential, or consent of instructor. Completion of or concurrent registration in Education 286A is prerequisite to 286B.
School building construction and utilization: the development of new facilities from the planning stage to complete utilization; remodeling.

Special Study and Research

- 295A-295B. Seminar (3-3)**
Prerequisites: Education 211 and advancement to candidacy for the Master of Arts degree in education.
An intensive study in selected areas of education culminating in a written project. Limited to students following Plan B for the Master of Arts degree in education.

298. Special Study (1-6)

Individual Study. Six units maximum credit. Prerequisite: consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

Student Teaching and Internship

316. Directed Teaching: Community College (4)

Prerequisites: Admission to Teacher Education and approval of the Community College program coordinator. Credit in Education 201 and 223 and concurrent registration in Education 251.

Systematic observation, participation, and teaching under supervision in a community college. Any grade below C is unacceptable for a credential. A weekly seminar or conference is required.

330. Internship (2-6)

Supervised internship experience in counseling activities. Application to take the course must be made early during the preceding semester. May be repeated with new content. Maximum credit six units applicable on a master's degree.

331. Field Work in Counseling (2-6)

Application of concepts and procedures of counseling services in appropriate school of agency setting. Daily observation and practice. Weekly seminar sessions with college staff.

Application to take course must be made early during the preceding semester. May be repeated with new content. Maximum credit six units applicable on a master's degree.

332. Practicum in Counseling (3)

Supervised experience in group and individual counseling and career planning. Application to take the course must be made early during the preceding semester. Maximum credit six units applicable on a master's degree.

333. Advanced Seminar and Practicum in Counseling (3-6)

Supervised experience in group and individual counseling and study of problems, issues, and research. Application to take the course must be made early during the preceding semester.

360. Internship in School Administration and Supervision (3 to 6)

Prerequisites: Standard Teaching Credential and consent of instructor.
Internship for prospective school administrators in the public schools. Released time, permission of school district, and preregistration with Coordinator of Program of Educational Administration previous semester required.

371. Directed Internship—Mentally Retarded (4)

Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of the mentally retarded.

374. Directed Internship—Speech Correction (4)

Application to take the course should be made during the preceding semester.
Extensive daily participation or teaching in public schools and preparation for the teaching of exceptional children in the area of speech correction.

375. Directed Internship for the Instructional Media Specialist (2-6)

Supervised internship in an instructional media center (application must be made during preceding semester.)

ENGINEERING

GENERAL INFORMATION

The School of Engineering offers graduate study leading to Master of Science degrees in Aerospace, Civil, Electrical, and Mechanical Engineering. These curriculums are designed to augment the student's undergraduate training by advanced study in one of the various fields of engineering. Recognizing the increasing importance in modern technology of the engineer-scientist team, San Diego State has developed an academic pattern which offers to one holding a first degree in engineering an opportunity to pursue advanced study in a specialized area of knowledge.

The undergraduate curriculum in Engineering, with options in aerospace, civil, electrical and electronic, and mechanical engineering, is accredited by the Engineers' Council for Professional Development.

Within the region served by San Diego State are to be found many industrial organizations which employ a considerable number of engineers holding the Master of Science degree.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing as described in Part Three of this bulletin, "Admission to the Graduate Division." In addition, the student must have a bachelor's degree in a field of engineering appropriate to the field in which he desires to earn an advanced degree or in a field closely related thereto from an institution acceptable to the School of Engineering. If a student's undergraduate preparation is deemed insufficient, he will be required to take specified courses for the removal of the deficiency. Such courses, taken as an unclassified graduate, are in addition to the minimum of 30 units for the master's degree in engineering.

To be recommended for classified graduate standing and to be eligible to enroll in 200-numbered courses the student must further satisfy the special requirements of the appropriate field of engineering as stated below.

ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, which are described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREES

In addition to meeting the requirements for classified graduate standing as stated above, the student must satisfy the basic requirements for the master's degree as described in Part Three of this bulletin. With the approval of the appropriate department the student working toward the Master of Science degree may elect either Plan A, requiring a thesis, or Plan B, requiring a comprehensive written examination. In either case, a final oral examination will be required.

The student shall arrange his course pattern, in conference with his graduate adviser, according to the following requirements for the specific degree:

AEROSPACE ENGINEERING

Classified Graduate Standing: To be recommended for classified graduate standing in the Graduate Division and to be able to enroll in graduate (200-numbered) courses, a student must satisfy the general requirements for admission to the Graduate Division.

Specific requirements for the Degree: The student's program prepared in conference with his graduate adviser, must satisfy the following requirements:

- Fifteen units of 200-numbered courses in aerospace engineering and/or engineering mechanics including at least nine units in one area of concentration (designated as Group A, Group B, and Group C below) and excluding Engineering 290, 298, 299.
- At least nine additional units of 100- or 200-numbered courses in the School of Engineering or in the departments of mathematics, physics, or astronomy, including Engineering 299 (Plan A), if elected.

- Six elective units of 100- or 200-numbered courses approved by the graduate adviser.

Areas of Concentration in Aerospace Engineering

Group A: Fluid Dynamics

- EM 243. Advanced Fluid Mechanics I (3)
- EM 244. Advanced Fluid Mechanics II (3)
- AE 241. Hydrodynamic Stability (3)
- AE 242. Theory and Aerodynamics of Transonic Flight (3)
- AE 243. Supersonic Flow Theory (3)
- AE 244. Hypersonic Flow Theory (3)
- AE 245. Magnetofluidmechanics (3)
- AE 246. Rarefied and Real Gas Flows (3)

Group B: Engineering Mechanics

- AE 222. Aerothermal Structural Analysis (3)
- EM 221. Theory of Elasticity (3)
- EM 222. Theory of Anisotropic Elasticity (3)
- EM 223. Energy Methods in Mechanics (3)
- EM 225. Theory of Plates (3)
- EM 226. Theory of Shells (3)
- EM 227. Elastic Stability (3)
- EM 233. Theory of Plasticity (3)

Group C: Flight Dynamics

- AE 202. Aeroelasticity (3)
- AE 204. Flight Dynamics—Stability and Control (3)
- AE 205. Flight Dynamics—Theory of Flight Paths (3)
- EM 201. Advanced Dynamics (3)
- EM 203. Theory of Vibrations (3)
- EM 204. Non-linear Vibrations (3)
- EM 205. Theory of Random Vibrations (3)

CIVIL ENGINEERING

Classified Graduate Standing: To be recommended for classified graduate standing in the Graduate Division and to be able to enroll in graduate (200-numbered) courses, a student must satisfy the general requirements for admission to the Graduate Division.

Specific Requirements for the Degree: The student's program, prepared in conference with his graduate adviser, must satisfy the following requirements:

- Eighteen units of 200-numbered courses in civil engineering, excluding Engineering 290, 298, and 299.
- At least six additional units of 100- or 200-numbered courses in the School of Engineering or in the Division of Physical Sciences, including Engineering 299, (Plan A), if elected.
- Six elective units of 100- or 200-numbered courses approved by the graduate adviser.

ELECTRICAL ENGINEERING

Classified Graduate Standing: To be recommended for classified graduate standing in the Graduate Division and to be able to enroll in graduate (200-numbered) courses, a student must satisfy the general requirements for admission to the Graduate Division.

Specific Requirements for the Degree: The student's program, prepared in conference with his graduate adviser, must satisfy the following requirements:

- Eighteen units of 200-numbered courses in electrical engineering. A maximum of 6 units of 200-numbered courses in Physics may be used in partial fulfillment of this 18 unit requirement.
- At least six additional units of 100- or 200-numbered courses in the School of Engineering or in the Division of Physical Sciences.
- Six elective units of 100- or 200-numbered courses approved by the graduate adviser.

MECHANICAL ENGINEERING

Classified Graduate Standing: To be recommended for classified graduate standing in the Graduate Division and to be able to enroll in graduate (200-numbered) courses, a student must satisfy the general requirements for admission to the Graduate Division.

Specific Requirements for the Degree: The student's program, prepared in conference with his graduate adviser, must satisfy the following requirements:

- Fifteen units of 200-numbered courses in mechanical engineering excluding Engineering 290, 298, 299, and Mechanical Engineering 297.
- At least nine additional units of 100- or 200-numbered courses in the School of Engineering.
- Six elective units of 100- or 200-numbered courses approved by the graduate adviser.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in engineering are available to a limited number of qualified students. Application blanks and additional information may be secured from the chairman of the appropriate department.

FACULTY

Dean, School of Engineering: M. P. Capp, M.S.

Associate Dean, School of Engineering: F. T. Quiett, M.S.

Chairman, Department of Aerospace Engineering and Engineering: J. F. Conly

Chairman, Department of Civil Engineering: Iraj Noorany

Chairman, Department of Electrical Engineering: V. R. Learned

Chairman, Department of Mechanical Engineering: R. A. Fitz

Graduate Advisers: J. F. Conly, Aerospace Engineering; Iraj Noorany, Civil Engineering; V. R. Learned, Electrical Engineering; C. R. Lodge, Electrical Engineering; R. J. Murphy, Mechanical Engineering.

Professors: R. L. Bedore, M.S.M.E.; M. P. Capp, M.S.; J. F. Conly, Ph.D.; Sangiah Dharmarajan, Ph.D.; R. A. Fitz, Ph.D.; P. E. Johnson, M.S.C.E.; V. R. Learned, Ph.D.; C. R. Lodge, Ph.D.; Charles Morgan, M.S.M.E.; Iraj Noorany, Ph.D.; F. T. Quiett, M.S.; M. V. R. Rao, Ph.D.; W. H. Shutts, Ph.D.; S. H. Stone, M.S.E.

Associate Professors: Shu Yan Chan, Ph.D.; H. Y. Chang, Ph.D.; G. T. Craig, Ph.D.; D. M. Eggleston, Ph.D.; G. Krishnamoorthy, Ph.D.; K. F. Leonhardt, M.S.; M. S. Lin, Ph.D.; R. L. Mann, M.S.; R. J. Murphy, Ph.D.; Basil Ohnysty, M.S.E.; D. L. Skaar, M.S.; H. L. Stone, B.S.; F. E. Stratton, Ph.D.

Assistant Professors: S. L. Agarwal, Ph.D.; L. W. Bearson, M.S.E.E.; H. L. Bilterman, M.A.; W. L. Brown, E.E.; W. M. Caton, Ph.D.; F. H. Chou, Ph.D.; A. J. Crooker, Ph.D.; F. J. Harris, M.S.E.E.; N. A. L. Hussain, Ph.D.; F. J. Lahey, Ph.D.; G. A. Mansfield, Jr., M.S.E.E.; S. S. McElmury, Ph.D.; R. D. McGhie, Ph.D.; B. S. Narang, Ph.D.; Nicholas Panos, M.S.E.E.; R. J. Stuart, Ph.D.; R. A. Wagstaff, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS

UPPER DIVISION COURSES IN ENGINEERING

In order to provide the individual graduate student with a maximum of flexibility in pursuing his advanced studies, a maximum of six units in engineering courses other than those listed below may be elected by the student subject to the approval of his graduate adviser and the department chairman.

Aerospace Engineering Programs

109. Nonmetallic Materials (3)
112. Advanced Network Analysis (3)
114. Analysis and Design of Electronic Circuits (3)
- 114L. Electronic Circuits Laboratory (1)
134. Communication Circuits (3)
- 134L. Communication Circuits Laboratory (1)
137. Communication Networks (3)
140. Principles of Heat Transfer (3)

142. Elements of Energy Conversion (3)
144. Thermal Environmental Engineering (3)
- 146B. Advanced Machine Design (3)
- 147A. Introduction to Mechanical Vibrations (3)
- 147B. Experimental Vibrations (3)
- 150A. Low Speed Aerodynamics (3)
- 150B. High Speed Aeronautics (3)
- 153A. Aerospace Flight Mechanics (3)
- 153B. Intermediate Aerospace Flight Mechanics (3)
155. Matrix Methods in Aerospace Structures (3)
156. Intermediate Dynamics (3)
157. Intermediate Fluid Mechanics (3)
158. Aircraft Design and Performance (3)
167. Control Systems Components (3)
- 167L. Control Systems Components Laboratory (1)
168. Feedback Control Systems (3)
- 169L. Feedback Control Systems Laboratory (1)
181. Hydrodynamics (3)
- 187B. Methods of Analysis (3)
188. Digital Solutions of Engineering Problems (3)
189. Automatic Control Systems (3)
- 196B. Advanced Engineering Topics (1-3)

Civil Engineering Programs

- 120B. Structural Analysis II (3)
125. Sanitary Engineering (3)
- 128B. Advanced Surveying (3)
129. Highway Materials (2)
144. Thermal Environmental Engineering (3)
155. Matrix Methods in Aerospace Structures (3)
156. Intermediate Dynamics (3)
186. Advanced Resistance of Materials (3)
- 196B. Advanced Engineering Topics (1-3)

Electrical Engineering Programs

133. Stochastic Signals (3)
134. Communication Circuits (3)
- 134L. Communication Circuits Laboratory (1)
135. Modulation Theory (3)
139. Advanced Field Theory (3)
- 139L. Microwave Measurements Laboratory (1)
144. Thermal Environmental Engineering (3)
162. Transistor Circuit Analysis (3)
164. Semiconductor Devices (3)
168. Feedback Control Systems (3)
169. Advanced Feedback Control Systems (3)
- 169L. Feedback Control Systems Laboratory (1)
173. Electronic Analog Systems (3)
175. Advanced Pulse and Digital Circuits (3)
177. Advanced Logic Design and Switching Circuits (3)
- 187B. Methods of Analysis (3)
188. Digital Solutions of Engineering Problems (3)
191. Microwave Devices (3)
- 196B. Advanced Engineering Topics (3)

Mechanical Engineering Programs

109. Nonmetallic Materials (3)
- 120B. Structural Analysis II (3)
142. Elements of Energy Conversion (3)
143. Gas Dynamics (3)
144. Thermal Environmental Engineering (3)
- 146B. Advanced Machine Design (3)
- 147A. Introduction to Mechanical Vibrations (3)
- 147B. Experimental Vibrations (3)
149. Advanced Thermodynamics (3)

- 150A. Low Speed Aerodynamics (3)
 150B. High Speed Aerodynamics (3)
 152. Aircraft Propulsion Systems (3)
 154. Experimental Aerodynamics (2)
 160A-160B. Principles of Chemical Engineering (3-3)
 181. Hydrodynamics (3)
 183. Simulation of Engineering Systems (3)
 187B. Methods of Analysis (3)
 188. Digital Solutions of Engineering Problems (3)
 189. Automatic Control Systems (3)
 196B. Advanced Engineering Topics (3)

GRADUATE COURSES IN AEROSPACE ENGINEERING

- AE 200. Seminar (1-3)
 Prerequisite: Consent of the graduate adviser and instructor.
 Intensive study of selected topics in aerospace engineering, topic to be announced in class schedule. Maximum credit 6 units applicable on a master's degree.
- AE 202. Aeroelasticity (3)
 Prerequisites: Engineering Mechanics 201 and credit or concurrent registration in Mathematics 118B.
 Aircraft and missile structures deformed under static and dynamic loads; aeroelastic instability, vibration modes, divergence, loss of control and alteration of lift distribution; introduction to flutter analysis.
- AE 204. Flight Dynamics—Stability and Control (3)
 Prerequisite: Credit or concurrent registration in Engineering Mechanics 201.
 Dynamic stability and control of aerospace vehicles. Stability derivatives, stability of uncontrolled motion, response to actuation of controls, automatic stability and control.
- AE 205. Flight Dynamics—Theory of Flight Paths (3)
 Prerequisite: Engineering 150.
 Analysis of trajectories of aircraft, missiles, satellites, and spacecraft subjected to uniform or central gravitational forces, aerodynamic forces, and thrust.
- AE 222. Aerothermal Structural Analysis (3)
 Prerequisite: Engineering Mechanics 221.
 Stress analysis of structures at elevated temperatures.
- AE 241. Hydrodynamic Stability (3)
 Prerequisite: Engineering Mechanics 243.
 Stability of boundary layers, superposed fluids, fluids with thermal gradients, hydromagnetic flow.
- AE 242. Theory and Aerodynamics of Transonic Flight (3)
 Prerequisite: Engineering 187B.
 Application of engineering principles to the analysis of transonic flight.
- AE 243. Supersonic Flow Theory (3)
 Prerequisite: Engineering 150.
 Theory of flow at supersonic speeds. Linearized theory, three-dimensional wings in steady flight, slender-body theory, methods of characteristics.
- AE 244. Hypersonic Flow Theory (3)
 Prerequisite: AE 243.
 Two- and three-dimensional hypersonic flows. Hypersonic similarity parameter, hypersonic small-disturbance theory; Newtonian flow, shock-layer, and other methods for blunt bodies.
- AE 245. Magnetofluidmechanics (3)
 Prerequisite: EM 243.
 Study of the effects of interaction of an electromagnetic field with an electrically conducting fluid. Stability, boundary layers, shock waves, and other applications.

- AE 246. Rarefied and Real Gas Flows (3)
 Prerequisite: Mathematics 118B.
 Kinetic theory, the Boltzmann equation, the hydrodynamic equations, Chapman-Enskog Theory. Real gases and chemical reactions. Approximations: applications to shock structure, ultrasonics, heat transfer, and hypersonics. Free molecule flow.
- AE 250. Principles of Electromagnetic Propulsion (3)
 Prerequisite: Engineering 187B.
 Basic concepts of plasmas and magnetogasdynamics; developing magnetogascynamic power plants.
- AE 253. Seminar on Boundary Layer Topics (3)
 Prerequisite: EM 244.
 Boundary layer control, dissociation in boundary layers, ablation in boundary layers.
- AE 296. Advanced Topics in Aerospace Engineering (2 or 3)
 Advanced study in the field of aerospace engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.
- AE 297. Research (1-3)
 Prerequisite: Consent of graduate adviser.
 Research in engineering. Maximum credit six units applicable on a master's degree.

GRADUATE COURSES IN CIVIL ENGINEERING

- CE 200. Seminar (2 or 3)
 Prerequisite: Consent of the graduate adviser and instructor.
 An intensive study in advanced civil engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.
- CE 201. Advanced Theory of Structures (3)
 Prerequisites: Engineering 120B and Mathematics 118A.
 Analysis of statically indeterminate structures based on principles of deflected structures. Approximate analysis of structures under lateral loads for rigid and shear wall structures.
- CE 202. Design of Thin Shell Structures (3)
 Prerequisite: Engineering 120B.
 Analysis and design of typical civil engineering thin shell structures.
- CE 203. Plastic Design in Steel (3)
 Prerequisite: Engineering 120B.
 Analysis and design of steel framed structures for ultimate load. Connections, secondary design problems, column stability, and repeated loading.
- CE 204. Advanced Problems in Structural Design (3)
 Prerequisite: CE 201.
 Design of buildings in steel and timber by elastic theory and limit design. Seismic resistant design.
- CE 205. Prestressed Concrete Structures (3)
 Prerequisite: Engineering 120B.
 Fundamental concepts of prestressed concrete theory. Design applications to various types of structures.
- CE 206. Matrix Analysis of Structures (3)
 Prerequisite: Engineering 120B.
 Development of matrix methods for the analysis of structural systems. Force methods, displacement methods. Application of the digital computer to structural analysis.
- CE 207. Dynamics of Structures (3)
 Prerequisite: Engineering 120B.
 Dynamic disturbances, structures with variable degrees of freedom, free vibrations of slender elastic beams; continuous beams, rigid frames, floor systems. Energy methods in structural dynamics.

- CE 208. Numerical Methods in Structural Engineering (3)**
Prerequisite: Engineering 120B.
Moments and deflections in beam systems; elastic and inelastic stability, columns and beams on elastic supports, vibration of structural systems.
- CE 209. Computer Analysis of Structures (3)**
Prerequisites: Engineering 40 and 120B.
Fundamentals of matrix notation, equilibrium equations, compatibility relations, constitutive equations, joint releases. General algorithm for writing computer programs for space structures, trusses and frames. Use of existing programs such as ICES/STRUDL, NASTRAN, etc., for solving actual problems.
- CE 210. Finite Element Analysis of Structures (3)**
Prerequisites: Engineering 40 and 120B.
General procedure, various types of finite elements; analysis and design of isotropic and orthotropic plates and shells, deep beams, and shear walls using finite element technique; use of digital computers for solutions. Application to civil engineering structures.
- CE 220. Traffic Engineering (3)**
Prerequisite: Engineering 127.
Traffic characteristics and studies. Control and regulation of street and highway traffic. Parking facilities, mass transportation, traffic engineering administration.
- CE 221. Airport Engineering (3)**
Prerequisite: Engineering 127.
Problems in airport planning and design. Site selection, general airport layout; safety, economy and community compatibility. Functional design of buildings. Lighting, navigational aids, approach protection.
- CE 230. Open Channel Hydraulics (3)**
Prerequisite: Engineering 123.
Open channel flow theory, analysis, and problems, including studies of critical flow, uniform flow, gradually varied and rapidly varied flow, all as applied to the design of channels, spillways, energy dissipators, and gravity pipelines.
- CE 231. Engineering Hydrology (3)**
Prerequisite: Engineering 123.
Measurement and interpretation of precipitation, evapotranspiration, stream flow and groundwater flow; hydrologic methodology and applications.
- CE 232. Fluvial Hydraulics (3)**
Prerequisite: Engineering 123.
Characteristics of rivers; mechanics of sediment transport; hydraulics and design of alluvial channels; channel stability; model studies.
- CE 235. Water Quality Engineering (3)**
Prerequisites: Engineering 123 and 125.
Development of water quality criteria. Survey of current methods of water treatment, wastewater treatment and water renovation. Economic considerations of water quality management.
- CE 236. Water Quality Processes I (3)**
Two lectures and three hours of laboratory.
Prerequisite: Civil Engineering 235 or concurrent registration with consent of instructor.
Theoretical and laboratory study of the chemical and microbiological processes which govern modern water and wastewater treatment.
- CE 237. Water Quality Processes II (3)**
Two lectures and three hours of laboratory.
Prerequisite: Civil Engineering 236.
Laboratory and pilot plant studies involving the application of physical, chemical and biological processes to the treatment of water, wastewater and industrial wastes.
- CE 240. Advanced Soil Mechanics (3)**
Prerequisite: Engineering 122.
Advanced theories of soil mechanics and their applications to design, including physicochemical behavior of soils, theories of compaction, consolidation, stress distribution, shear strength, settlement analyses, lateral pressures, and bearing capacity of soils.
- CE 241. Advanced Foundation Engineering (3)**
Prerequisite: CE 240.
Advanced theories of soil bearing capacity and stress distribution in soils. Analysis and design of foundations and retaining walls. Shallow foundations, piles, piers and caissons. Design of foundations for dynamic loads. Dewatering and other field problems.
- CE 242. Seepage and Earth Dams (3)**
Prerequisite: CE 240.
Principles governing the flow of water through soils and their application in the design of earth and rock fill dams. Stability analysis and design of earth dams.
- CE 243. Experimental Soil Mechanics (2)**
One lecture and three hours of laboratory.
Prerequisite: Credit or concurrent registration in CE 240.
Techniques of laboratory testing for the determination of the engineering properties of soils. Applications in foundation engineering, earth dams, highways, airports and underwater soil engineering.
- CE 244. Soil Structure Interaction (3)**
Prerequisite: Credit or concurrent registration in CE 240.
Analysis of stresses and deformations of structural elements supported by soil. Analysis of pile foundations subject to lateral, vertical and combined loads by numerical and finite element methods. Solutions of slabs and mat foundations.
- CE 280. Seminar in Structural Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in structural engineering. Maximum credit six units applicable on a master's degree.
- CE 281. Seminar in Transportation Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in transportation engineering. Maximum credit six units applicable on a master's degree.
- CE 282. Seminar in Soil Mechanics and Foundation Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in soil mechanics and foundation engineering. Maximum credit six units applicable on a master's degree.
- CE 283. Seminar in Hydraulic Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in hydraulic engineering. Maximum credit six units applicable on a master's degree.
- CE 284. Seminar in Sanitary Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in sanitary engineering. Maximum credit six units applicable on a master's degree.
- CE 285. Seminar in Construction Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in construction engineering. Maximum credit six units applicable on a master's degree.
- CE 296. Advanced Topics in Civil Engineering (2 or 3)**
Advanced study in the field of civil engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

- CE 297. Research (1-3)
Prerequisite: Consent of graduate adviser.
Research in engineering. Maximum credit six units applicable on a master's degree.

GRADUATE COURSES IN ELECTRICAL ENGINEERING

- EE 200. Seminar (1-3)
An intensive study in advanced electrical engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.
- EE 201. Seminar in Electromagnetic Systems (1-3)
An intensive study in electromagnetic systems. Maximum credit six units applicable on a master's degree.
- EE 202. Seminar in Electronic Design (1-3)
An intensive study in electronic design. Maximum credit six units applicable on a master's degree.
- EE 203. Seminar in Digital Systems (1-3)
An intensive study in digital systems. Maximum credit six units applicable on a master's degree.
- EE 204. Seminar in Feedback Control Systems (1-3)
An intensive study in feedback control systems. Maximum credit six units applicable on a master's degree.
- EE 210. Linear System Analysis (3)
Prerequisites: Engineering 130 and credit or concurrent registration in Engineering 187B or Mathematics 118B.
Loop and nodal system equations based on topological considerations, four-terminal network theory using matrices. Fourier integral transform theory as applied to linear system analysis. Positive real functions and associated testing methods.
- EE 211. Linear System Synthesis (3)
Prerequisite: EE 210A.
Frequency-domain synthesis of driving point and transfer impedances in passive and active networks. Canonical forms and network equivalents. Time-domain synthesis and considerations of pulsed-data systems.
- EE 212. Synthesis of Linear Active Networks (3)
Prerequisite: Electrical Engineering 211.
Synthesis of linear networks using active elements such as controlled sources, negative-impedance converters, gyrators and operational amplifiers.
- EE 214. Computer-aided Network Analysis and Design (3)
Prerequisites: EE 210A and Fortran Programming.
Elements of approximation theory, device modeling, topological analysis of networks, applications of general purpose computer programs, design of passive and active filters, circuit optimization and other related topics.
- EE 216. Noise in Electrical Devices (3)
Major types and origins of electrical noise and the effects of noise on system behavior. Emphasis on concepts of noise as a random process, as distinguished from systematic or periodic interference.
- EE 220. Feedback Control Systems (3)
Prerequisite: Engineering 189 or Engineering 138A.
Analysis and synthesis of feedback control systems using feedback compensation. Multiple-loop control systems; a-c feedback control systems; optimization.
- EE 222. Sampled-Data Systems (3)
Prerequisite: Engineering 138A.
Analysis and synthesis of sampled-data and digital control systems; techniques for the design of time optimal sampled-data control systems; z-transform calculus and difference equation synthesis techniques for determining stability and system response. (Formerly entitled: Non-Linear Systems.)

- EE 224. Non-Linear Feedback Control Systems (3)
Prerequisite: EE 220.
Design and analysis of control systems which contain non-linearities, types of non-linearities, integrable systems, phase-plane analysis, describing functions and frequency analysis; compensation for unwanted non-linearities and application of compensating non-linearities.
- EE 225. State Space Analysis of Control Systems (3)
Prerequisite: Engineering 168.
State space representation of control systems, state transition flow graphs, methods of solution of the state equation, controllability and observability, and introduction to optimal control systems.
- EE 226. Optimal Control System (3)
Prerequisite: EE 220.
Optimal control theory through use of calculus of variations dynamic programming, Pontryagin's maximum principle for optimizing trajectories and control processes. Analysis and design of adaptive control systems.
- EE 230. Topics in Logic Design (3)
Prerequisite: Engineering 177.
Threshold logic, adaptive logic networks, magnetic core logic synthesis, functional decomposition, Turing machines, negative radix arithmetic. Solution of logic design algorithms by digital computer.
- EE 232. Transistor Circuit Design (3)
Prerequisite: Engineering 182.
Field effect transistors and circuits; quantitative variable nature of transistor parameters; differential and chopper stabilized dc amplifiers; high efficiency switching mode power amplifiers, converters and inverters; noise, reliability considerations and high speed switching.
- EE 234. Semiconductor RF Circuit Design (3)
Prerequisite: Engineering 134B.
Wide band amplifiers, low level RF amplifiers and mixers, IF amplifiers, AGC, tuning and stability problems, unilateralization and mismatching techniques, harmonic oscillators, VHF power amplifiers including varactor multipliers.
- EE 236. Electronic Digital Systems (3)
Prerequisite: Engineering 177.
Design of arithmetic, control and memory units. Detailed comparative analysis of the system organization and operation of several digital computers, with special attention to the interdependence of design decisions and their dependence upon the intended system application.
- EE 240. Radiation and Propagation (3)
Prerequisite: Engineering 139A.
Impedance characteristics and radiation patterns of thin linear antenna elements; field intensity calculations. Tropospheric and ionospheric propagation: propagation anomalies.
- EE 242. Microwave Networks (3)
Prerequisite: Engineering 139A.
Equivalent circuits for waveguide discontinuities developed on the basis of mode theory, linearity, reciprocity, and symmetry. Application of general network theory to wave guides, cavity resonators and antennas.
- EE 244. Microwave Antennas (3)
Prerequisite: EE 242.
Radiation from current distributions; design of microwave antennas; scattering and diffraction of electromagnetic waves. (Formerly EE 246, Microwave Antennas.)
- EE 246. Radar Systems (3)
The radar equation; characteristics of CW, FM, MTI, pulse-doppler and tracking radar system; transmitters, antennas and receivers; detection of signals in noise, extraction of information; propagation effects; system engineering and design.

EE 250. Quantum Electronics (3)

Quantum mechanics for engineers concerned with its application to solid-state devices and optical communication systems.

EE 252. Optical Communications (3)

Prerequisite: EE 250.

Fundamentals of electro-optical technology from ultraviolet through infrared. Characteristics of thermal and laser radiation including generation, transmission, detection, data processing and display.

EE 296. Advanced Topics in Electrical Engineering (2 or 3)

Advanced study in the field of electrical engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

EE 297. Research (1-3)

Prerequisite: Consent of graduate adviser.

Research in engineering. Maximum credit six units applicable on a master's degree.

GRADUATE COURSES IN ENGINEERING MECHANICS

EM 200. Seminar (2 or 3)

Advanced study of, or within, one phase of engineering mechanics, such as elasticity, plasticity, rheology, and micromeritics; buckling, vibration, and stability phenomena; hydrodynamics and magnetohydrodynamics; incompressible, compressible, and non-newtonian flow. May be repeated with new content. Maximum credit six units applicable on a master's degree.

EM 201. Advanced Dynamics (3)

Prerequisites: Engineering 50B and Mathematics 118A.

Kinematics and kinetics of systems of particles and rigid bodies with special reference to engineering problems. Moving reference axes, generalized coordinates, Lagrangian equations, Hamilton's principle and variational methods.

EM 203. Theory of Vibrations (3)

Prerequisites: Engineering Mechanics 201 and credit or concurrent registration in Mathematics 118B.

Linear and non-linear periodic phenomena as applied to discrete systems and continuous media with application to physical problems.

EM 204. Theory of Nonlinear Vibrations (3)

Prerequisite: EM 201.

Analysis of discrete systems with one or more degrees of freedom. Phase plane, harmonic balance, and other methods. Stability.

EM 205. Theory of Random Vibrations (3)

Prerequisite: EM 203.

Random processes with applications to vibration of discrete and continuous systems.

EM 210. Continuum Mechanics (3)

Prerequisite: Engineering 187B or Mathematics 118B.

Equations for the stress, deformation, and motion in a continuous medium; application in fluid and solid mechanics.

EM 221. Theory of Elasticity (3)

Prerequisites: Engineering 116 and credit or concurrent registration in Mathematics 118B. Engineering 186 is recommended.

Analysis of stress and strain: Stress-strain relations; the equations of elasticity; uniqueness theorem; compatibility conditions; flexure and torsion. Vector and tensor notation will be used.

EM 222. Theory of Anisotropic Elasticity (3)

Prerequisite: EM 221.

Generalized Hooke's law, transformation of elastic constants, laminated constitutive equations, laminated plates and shells, torsion of anisotropic bodies, design criteria for combined loading.

EM 223. Energy Methods in Mechanics (3)

Prerequisite: EM 221.

Variational energy principles applied to the dynamics of rigid bodies, analysis of elastic frames; theories of plates and shells, buckling, and vibrations.

EM 225. Theory of Plates (3)

Prerequisite: Engineering Mechanics 221.

Bending and buckling theory of plates; application of small deflection and large deflection theories to plates with various boundary conditions; use of approximate methods and exact methods in solution.

EM 226. Theory of Shells (3)

Prerequisite: Engineering Mechanics 221.

Membrane and bending theory of shells of revolution and shells of arbitrary shape; exact and approximate methods of solution of shells subjected to axisymmetric and arbitrary loads.

EM 227. Theory of Elastic Stability (3)

Prerequisite: EM 221.

Stability of elastic systems. Differential equations of stability by summation of forces and movements, and by the variational method. Applications.

EM 233. Theory of Plasticity (3)

Prerequisite: Engineering Mechanics 221.

Inelastic stress-strain relations. Solutions to engineering problems with ideally-plastic, strain-hardening, and visco-elastic materials.

EM 243. Advanced Fluid Mechanics I (3)

Prerequisites: Engineering 115 and credit or concurrent registration in Mathematics 118B.

Fluid kinematics and kinetics. Conservation of mass, energy, and momentum, applied to Newtonian fluids. Navier-Stokes equations. Couette and Poiseuille flow. Potential flow. Introduction to turbulence and boundary layer theory. Vector and tensor notation will be used.

EM 244. Advanced Fluid Mechanics II (3)

Prerequisite: Engineering Mechanics 243.

A continuation of Engineering Mechanics 243. Further work in laminar and turbulent flow, and boundary layer theory. Diffusion. Applications to engineering problems.

EM 296. Advanced Topics in Engineering Mechanics (2 or 3)

Advanced study in the field of engineering mechanics, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

EM 297. Research (1-3)

Prerequisite: Consent of graduate adviser.

Research in engineering. Maximum credit six units applicable on a master's degree.

GRADUATE COURSES IN MECHANICAL ENGINEERING

ME 200. Seminar (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in advanced mechanical engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

ME 201. Seminar in Thermodynamics and Fluid Flow (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in thermodynamics and fluid flow. Maximum credit six units applicable on a master's degree.

ME 202. Seminar in Cryogenics (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor.

An intensive study in cryogenics. Maximum credit six units applicable on a master's degree.

- ME 203. Seminar in Engineering Materials (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in engineering materials. Maximum credit six units applicable on a master's degree.
- ME 204. Seminar in Engineering Systems (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in engineering systems. Maximum credit six units applicable on a master's degree.
- ME 205. Seminar in Operations Research in Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in operations research in engineering. Maximum credit six units applicable on a master's degree.
- ME 206. Seminar in Nuclear Engineering (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in nuclear engineering. Maximum credit six units applicable on a master's degree.
- ME 207. Seminar in Mechanical Design (2 or 3)**
Prerequisite: Consent of the graduate adviser and instructor.
An intensive study in mechanical design. Maximum credit six units applicable on a master's degree.
- ME 220A-220B. Mechanical Vibrations (3-3)**
Prerequisites: Engineering 147B, 183, and 187B.
Topics in vibration relating to mechanical design such as non-linear vibrations, distributed mass systems, random vibrations, mobility analysis, isolater design.
- ME 221. Stress Analysis (3)**
Prerequisites: Engineering 146B, 186, and 187B.
Topics in applied elasticity, advanced study of the resistance of materials and experimental stress analysis. Failure theories, energy methods, limit design, theory of plates and shells. Photoelasticity, brittle lacquers, strain gages, and analogs in determining static, dynamic and residual stress distributions.
- ME 222A-222B. Synthesis of Machines (3-3)**
Prerequisites: Engineering 183 and 187B.
Problems in mechanical design involving synthesis of mechanisms wherein displacement, velocity, acceleration and jerk are paramount considerations.
- ME 224. Fluid Power and Control Systems (3)**
Prerequisite: Engineering 189 or equivalent.
Analysis of dynamic performance of physical systems such as pneumatic, hydraulic and hot-gas. Transient forces and valve instability. Servo characteristics.
- ME 231A. Advanced Science of Materials I (3)**
Prerequisite: Engineering 107.
Structure and physical properties of solids. Imperfections in materials and their effect on various properties. Elasticity, plasticity, and fracture of metals related to atomic and crystal structure.
- ME 231B. Advanced Science of Materials II (3)**
Prerequisite: Mechanical Engineering 231A.
Phase equilibria, metastability, rate and growth processes in solids. Principles of alloying and thermal treatments.
- ME 233. Reactor Materials (3)**
Prerequisite: Engineering 107.
Metallurgical processing, corrosion, and radiation effects of nuclear materials. Selection of reactor materials.
- ME 234. High Temperature Materials (3)**
Prerequisite: Engineering 107.
Behavior of metals, cermets, and nonmetallic materials at high temperatures. Effect of environment and service conditions on composition, structure, and physical properties.
- ME 246. Advanced Topics in Automatic Controls (3)**
Prerequisites: Engineering 187A and 189.
Synthesis of linear control systems. Analysis of nonlinear systems by describing function and phase plane methods. Sampled data systems analysis; statistical design techniques and adaptive control.
- ME 250. Analytical Thermodynamics (3)**
Prerequisite: Engineering 187A.
Advanced concepts of macroscopic thermodynamics. Application of thermodynamics to special systems. (Formerly numbered ME 214.)
- ME 260. Conduction Heat Transfer (3)**
Prerequisites: Engineering 140 and 187B.
Conduction heat transfer, multidimensional conduction processes, transient analysis. (Formerly numbered ME 215A.)
- ME 262. Convection Heat Transfer (3)**
Prerequisite: ME 260.
Convection heat transfer. Advanced theories of forced and free convection. (Formerly numbered ME 215B.)
- ME 264. Radiation Heat Transfer (3)**
Radiation heat transfer. Solid body and gaseous radiation. (Formerly numbered ME 215C.)
- ME 267. Cryogenic Engineering (3)**
Prerequisite: Engineering 148.
Analysis of low-temperature processes and equipment. Physical properties of structural and other materials used in producing, maintaining, and using low temperatures. (Formerly numbered ME 210.)
- ME 270. Gas Dynamics (3)**
Prerequisites: Engineering 143 and Mathematics 118B.
Further consideration of the flow of compressible fluids in conduits. Shock fronts, unsteady flow and real gases. (Formerly numbered ME 212.)
- ME 274. Boundary Layers in Internal Flows (3)**
Prerequisites: Engineering 118 and 187B.
Conservation laws applied to boundary layers in viscous, heat conducting fluids; analysis of the boundary layer equations; applications to internal flows.
- ME 276. Bearing Design and Lubrication (3)**
Prerequisite: Engineering 187B.
Friction and wear of materials. Boundary and thick film lubrication. Design of incompressible and compressible fluid bearings; rolling-element bearings.
- ME 280. Aircraft and Missile Propulsion (3)**
Prerequisites: Engineering 142, 143, and Mathematics 118B.
Analysis of ideal gas turbine cycles. Principles of regeneration, reheat and intercooling. Thermodynamic analysis and performance of turbojet engines, ramjet engines and rocket motors. Rocket jet propellant systems. Dynamics of rocket propulsion free of gravity and air resistance. (Formerly numbered ME 213.)
- ME 281. Propulsion Systems for Spacecraft (3)**
Prerequisites: Engineering 148 and 187B.
The physical and chemical laws that govern the performance, selection and design of non air-breathing propulsion systems for space applications.

ME 284. Theory of Turbomachines (3)

Prerequisites: Engineering 143 or 150.

Application of the fundamental laws of fluid mechanics to the problems of energy transfer between fluid and rotor. Performance characteristics of turbomachines. Study of loss mechanisms. (Formerly numbered ME 216.)

ME 285. Direct Energy Conversion (3)

Prerequisites: Engineering 149 or ME 250; and Engineering 187A.

Application of physical and chemical laws to the analysis, design, and evaluation of various direct energy conversion systems.

ME 296. Advanced Topics in Mechanical Engineering (2 or 3)

Advanced study in the field of mechanical engineering, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

ME 297. Research (1-3)

Prerequisite: Consent of graduate adviser.

Research in engineering. Maximum credit six units applicable on a master's degree.

GRADUATE COURSES IN ENGINEERING

E 290. Problem Analysis (3)

Prerequisite: Consent of graduate adviser.

Review of methods for investigation and reporting of data. Consideration of problems in preparation of project or thesis.

E 298. Special Study (1-3)

Individual study. Three units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

E 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

ENGLISH

GENERAL INFORMATION

The Department of English, in the College of Arts and Letters, offers graduate study leading to the Master of Arts degree in English.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division. Graduates from San Diego State must have completed a minimum of 24 units of upper division English courses in a well-rounded program. Graduates from other colleges must complete an English major equivalent to the one at San Diego State before admission to classified graduate standing can be recommended. If, in the opinion of the graduate adviser, an equivalent major is not offered, the student will be required to complete such courses as may be necessary to satisfy the department's requirements before the student may enter upon the master's degree curriculum. The English Department recommends that undergraduate students study extensively some foreign language as preparation for graduate work in English.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, including the foreign language requirement, as stated in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes a major consisting of at least 24 units in English from courses listed below as acceptable on master's degree programs, of which at least 18 units must be in 200-numbered courses, exclusive of thesis. Required courses are English 290, at least one seminar, and any two of the following courses (if not previously taken): English 103, 180, 223, 224, and 234. Not more than three units from among English 140, 142, 144, 170, 171, 172, and 260 may count in any program other than the creative writing program described below.

In addition to the above requirements, the candidate must enroll in English 299 and write a thesis under departmental supervision, must pass an oral examination on his general knowledge of literature, and must demonstrate a reading knowledge of a relevant foreign language. The English Department recommends French, German, or Latin for students planning to go on to advanced graduate study. Details concerning the oral examination are available from the graduate advisers. The student may take this oral examination at any time after being granted classified graduate standing, but ordinarily will take it before enrollment in English 299, Thesis. The English Department assumes no responsibility for scheduling oral examinations between the end of Term I of the summer session and the beginning of the fall semester.

A student wishing to submit a thesis of creative writing must satisfy all the requirements stated above, except that he will be required to take only one course from among English 103, 180, 223, and 224. In addition, he must take a minimum of six units chosen with his adviser's approval from among the following courses: English 140, 142, 144, 153, 170, 171, 172, and 260. Not more than nine units from among the eight courses may count as part of the basic 24-unit requirement. The candidate must also submit samples of previous writing and work-in-progress to a departmental committee of three for consideration of the quality of his writing and the suitability of his work-in-progress for a creative writing thesis.

ASSISTANTSHIPS AND SCHOLARSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in English are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

The Dorothy Cranston Stott scholarship of \$100 is awarded each June to an English major who is graduating from San Diego State and who is continuing work towards a higher degree or credential.

FACULTY

Acting Chairman, Department of English: Lowell Tozer, Ph.D.
 Graduate Advisers: G. W. Sanderlin (Coordinator), Thomas Aninger, J. J. Benson, H. C. Brashers, L. H. Frey, G. A. Santangelo
 Professors: J. R. Baker, Ph.D.; J. W. Dickinson, Ph.D.; L. H. Frey, Ph.D.; J. H. Gellens, Ph.D.; G. C. Gross, Ph.D.; J. P. Monteverde, Ph.D.; W. A. Perkins, Ph.D.; G. L. Phillips, Ph.D.; G. W. Sanderlin, Ph.D.; G. A. Sandstrom, Ph.D.; C. F. Shouse, Ph.D.; J. N. Tidwell, Ph.D.; Lowell Tozer, Ph.D.; Kermit Vanderbilt, Ph.D.; Dorothy C. Wanlass, Ph.D.; Kingsley Widmer, Ph.D.

Associate Professors: J. J. Benson, Ph.D.; R. H. Hendrickson, Ph.D.; Suzanne Henig, Ph.D.; Muriel B. Ingham, Ph.D.; Karl Keller, Ph.D.; Mary E. Redding, Ph.D.; G. A. Santangelo, Ph.D.; O. D. Seright, Ph.D.; H. C. Taylor, Ph.D.

Assistant Professors: Thomas Aninger, Ph.D.; J. J. Barry, M.A.; A. F. Boe, M.A.; H. C. Brashers, Ph.D.; G. J. Butler, Ph.D.; Elizabeth E. Chater, M.A.; Nathalia Crane, G. T. Davis, M.F.A.; T. S. Donahue, Ph.D.; G. F. Drake, M.A.; R. J. Forrey, M.A.; R. J. Gervais, Ph.D.; J. C. Hinkle, M.A.; D. L. Karnath, M.A.; Dorothea F. Kehler, Ph.D.; H. F. Kehler, Ph.D.; R. C. Kohler, Ph.D.; C. R. McCoy, M.A.; D. D. McLeod, Ph.D.; F. S. Moramarco, Ph.D.; T. A. Nelson, Ph.D.; P. S. Nichols, Ph.D.; Emily H. Patterson, Ph.D.; R. W. Redding, Ph.D.; W. N. Rogers, M.A.; James Rother, M.A.; Roberta F. Sarfatt, Ph.D.; Minas Savvas, M.A.; H. C. Stiehl, Ph.D.; E. D. S. Sullivan, Ph.D.; Shirley O. Taft, M.A.; J. R. Thrane, Ph.D.; Jacqueline D. Tunberg, Ph.D.; J. L. Wheeler, M.A.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN ENGLISH

UPPER DIVISION COURSES

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>101. Shakespeare (3)
 102. Study of Shakespeare (3)
 103. Chaucer (3)
 104. Milton (3)
 105. The Bible as Literature (3)
 111. Renaissance Literature (3)
 112. Seventeenth Century Literature (3)
 113A-113B. Restoration and Eighteenth Century Literature (3-3)
 114A-114B. Nineteenth Century British Poetry (3-3)
 115. Nineteenth Century British Prose (3)
 116. Modern British Poetry (3)
 117. Modern British Fiction (3)
 118. Modern British Drama (3)
 121A-121B. English Fiction (3-3)
 122A-122B. English Drama (3-3)
 129. Topics in English Literature (3)
 130. Early American Literature (3)
 131. The American Renaissance (3)
 133. American Realism and Naturalism (3)
 134. Modern American Fiction (3)</p> | <p>135. Modern American Poetry (3)
 136. American Drama (3)
 138. Topics in American Studies (3)
 139. Topics in American Literature (3)
 140. Poetry (3)
 142. Fiction (3)
 144. Drama (3)
 149. Topics in the Study of Literary Genres (3)
 150. The History of Literary Criticism (3)
 153. Modern Criticism (3)
 170. The Writing of Poetry (3)
 171. The Writing of Fiction (3)
 172. The Writing of Non-Fiction (3)
 175. Advanced Composition (3)
 180. The English Language (3)
 181. The Structure of English (3)
 182. American English (3)
 183. English Linguistics (3)
 184. Phonemics and Morphemics (3)
 190. Selected Topics in English (2-3)
 198. Comprehensive Reading and Survey (3)</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

GRADUATE COURSES

220. Indo-European (3)
 Prerequisite: Anthropology 120 or English 197.
 Phonology, morphology, and syntax of the Indo-European language community, with special attention to "Centum" and "Satem" relationships.
223. Old English (3)
 Prerequisites: Twelve units of upper division work in English.
 Elementary grammar and readings in Old English prose and poetry; introduction to *Beowulf*.

224. Middle English (3)

Readings in Middle English prose and poetry exclusive of Chaucer.

233. American Literature (3)

Prerequisite: Twelve units of upper division work in English, with courses in American literature strongly recommended.
 Selected works of an author, period, or subject in American literature. Maximum credit six units applicable on a Master's degree.

234. Literature of the Middle Ages (3)

Prerequisite: Twelve units of upper division work in English.
 Selected works in the literature of the Middle Ages.

235. Renaissance Literature (3)

Prerequisite: Twelve units of upper division work in English.
 Selected works in the literature of the Renaissance.

236. Restoration and Eighteenth Century Literature (3)

Prerequisite: Twelve units of upper division work in English.
 Selected works in the literature of the late seventeenth and the eighteenth centuries.

237. Earlier Nineteenth Century Literature (3)

Prerequisite: Twelve units of upper division work in English.
 Selected works in the literature of the early nineteenth century.

238. Later Nineteenth Century Literature (3)

Prerequisite: Twelve units of upper division work in English.
 Selected works in the literature of the later nineteenth century.

239. Twentieth Century Literature (3)

Prerequisite: Twelve units of upper division work in English.
 Selected works in the literature of the twentieth century.

243. Poetry (3)

Prerequisite: Twelve units of upper division work in English.
 Poetry as a literary form.

244. Fiction (3)

Prerequisite: Twelve units of upper division work in English.
 Fiction as a literary form.

245. Drama (3)

Prerequisite: Twelve units of upper division work in English.
 The drama as a literary form.

260. Workshop in Creative Writing (3)

Prerequisite: Consent of instructor and departmental adviser.
 Criticism and coaching in the larger forms. Maximum credit six units applicable on a master's degree.

290. Bibliography and Methods of Literary Research (3)

Prerequisite: Twelve units of upper division English.
 Basic reference works, scholarly and critical journals; introduction to bibliographical techniques; exercises and problems in methods and exposition of research, including editorial procedures. Recommended for the first semester of graduate work. Prerequisite to graduate seminars.

291. Seminar: A Major Author (3)

Prerequisite: An appropriate upper division or graduate level background course, and English 290.
 The critical study of a major author, such as Shakespeare, Dickens, Mark Twain. May be repeated with new content; maximum credit six units applicable on a master's degree.

292. Seminar: A Cultural Period (3)

Prerequisite: An appropriate upper division or graduate level background course, and English 290.

Advanced study, through its literature, of a cultural period such as the Renaissance, the Enlightenment, the Romantic Revolution. May be repeated with new content; maximum credit six units applicable on a master's degree.

293. Seminar: A Literary Problem (3)

Prerequisite: English 290.

Advanced study of a literary problem, such as Regionalism in America, or European influences on American literature. May be repeated with new content; maximum credit six units applicable on a master's degree.

294. Seminar: A Literary Type (3)

Prerequisite: English 290.

Advanced study of a literary type, such as the Personal Essay, Epic, Tragedy. May be repeated with new content; maximum credit six units applicable on a master's degree.

295. Seminar in Linguistics (3)

Prerequisite: Completion of three units of 200-numbered courses in the master's program for Linguistics.

Research in linguistics, course content varying according to instructor. Maximum credit six units applicable to a master's degree.

298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

Individual study. Six units maximum credit.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

FRENCH

GENERAL INFORMATION

The Department of French and Italian, in the College of Arts and Letters, offers graduate study leading to the Master of Arts degree in French.

The staff in charge of the graduate program in French is composed of professors whose native tongue is French, or who have studied and traveled extensively in France and in other French-speaking areas, enabling them to represent authoritatively the French language and culture. Library facilities include rich resources in French literature and linguistics, including books, periodicals and newspapers. A foreign language laboratory with modern equipment is available to both graduate and undergraduate students.

ADMISSION TO THE GRADUATE DIVISION

The student must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. An undergraduate major in French including 24 upper division units must have been completed, at least six units of which must have been in a survey course in French literature.

ADVANCEMENT TO CANDIDACY

In addition to meeting the requirements for advancement to candidacy as described in Part Three of this bulletin, students may be required to pass a qualifying examination in French given by the Department of French and Italian.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units which includes a major consisting of at least 24 units in French, of which at least 17 units must be in 200-numbered courses in French, including French 299, Thesis, for those following Plan A.

Students who plan to earn a standard teaching credential as well as the master's degree in French will normally follow Plan B, which includes the passing of a written and oral comprehensive examination in lieu of the thesis.

ASSISTANTSHIPS

Graduate teaching assistantships in French are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Acting Chairman, Department of French and Italian: Hilda Nelson, Ph.D.

Credential Adviser: N. C. Altamura

Graduate Adviser: Janis M. Glasgow

Professors: S. L. Maxe, Ph.D.; L. N. Messier, Ph.D.; Guerard Piffard, Ph.D.

Associate Professors: Janis M. Glasgow, Ph.D.; Hilda Nelson, Ph.D.; GianAngelo Vergani, Dottorato in Lettere

Assistant Professors: N. C. Altamura, Ph.D.; A. G. Branan, M.A.; W. B. Dunhouse, M.A.; Jeanne S. Ghilbert, M.A.; Elizabeth R. Jackson, doctorat d' Université de Paris; Dennis Palmer, A.B.; G. L. Woodle, Ph.D.

**COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS
IN FRENCH**

UPPER DIVISION COURSES

- | | |
|--------------------------------------------------------|---------------------------------------------|
| 105. Nineteenth Century French Theatre (3) | 114. Twentieth Century French Novel (3) |
| 107A-107B. Eighteenth Century French Literature (3-3) | 115. Twentieth Century French Theatre (3) |
| 110A-110B. Nineteenth Century French Novel (3-3) | 117. Renaissance and Baroque Literature (3) |
| 111A-111B. Seventeenth Century French Literature (3-3) | 148. Applied French Linguistics (3) |
| 112A-112B. French Lyric Poetry (3-3) | 150. Advanced Phonetics and Diction (3) |

Related Fields: Related courses in the fields of anthropology, geography, history, political science, comparative literature, and others, may be selected with the approval of the graduate adviser.

GRADUATE COURSES

201. History of the French Language (3)
Prerequisite: 18 units of upper division French.
The history of the French language from the beginnings through the sixteenth century.
202. Medieval French Literature (3)
(Offered alternate years.)
Prerequisite: 18 units of upper division French and French 201.
Readings in the principal monuments, trends and genres of medieval French literature from the beginnings through Francois Villon.
203. Literature of the French Renaissance (3)
(Offered alternate years.)
Prerequisites: 18 units of upper division French and French 201.
Literature and thought of the 16th century as represented in the works of Rabelais, Montaigne, Ronsard, Du Bellay, etc.
214. The Novel in France in the 20th Century (3)
Prerequisite: 18 units of upper division French.
Current movements and techniques in the novel in France from 1900 to the present, with concentration on the leading novelists of the period.
215. The Theater in France in the 20th Century (3)
Prerequisite: 18 units of upper division French.
Movements and techniques in the French dramatic literature from 1900 to the present, with concentration on the leading dramatists of the period.
220. Explication de Textes (3)
Prerequisite: 18 units of upper division French.
An introduction to the analytical French approach to the detailed study of literature. Demonstrations by instructor and students. This course aims to give teachers of French a greater mastery of French language and literature.
230. Methods of Literary Criticism (3)
Prerequisite: 18 units of upper division French.
Theory and practice of various traditional and modern critical approaches to specific literary texts.
250. Seminar in Seventeenth-Century Literature (3)
Prerequisite: 18 units of upper division French.
Directed research in the works of a representative author (such as Corneille, Molière, or Racine), or in a genre or movement.
Maximum credit six units applicable on a master's degree.

260. Seminar in Eighteenth-Century Literature (3)

Prerequisite: 18 units of upper division French.
Directed research in the works of a representative author (such as Voltaire, Diderot, or Rousseau), or in a genre or movement.
Maximum credit of six units applicable on a master's degree.

270. Seminar in Nineteenth-Century Literature (3)

Directed research in the works of a representative author (such as Hugo, Balzac, Stendhal, or Zola), or in a genre or movement.
Maximum credit six units applicable on a master's degree.

290. Research and Bibliography (3)

Prerequisite: 18 units of upper division French.
Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

294. Comprehensive Reading and Survey Course (3)

Prerequisites: 18 units of upper division French and consent of graduate adviser and department chairman.

A study of important movements, authors, and works in French literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examination in literature for candidates for the Master of Arts degree.

298. Special Study (1-3)

Prerequisite: 18 units of upper division French and consent of staff; to be arranged with department chairman and instructor.

Individual study. Maximum credit three units applicable on a master's degree.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

GEOGRAPHY

GENERAL INFORMATION

The Department of Geography, in the College of Arts and Letters, offers graduate study leading to the Master of Arts degree in Geography. For graduate study in connection with the Master of Arts degree in Social Science, refer to the section of this bulletin under Social Science.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified standing as described in Part Three of this bulletin under Admission to the Graduate Division. In addition, candidates whose preparation is deemed insufficient by the graduate adviser will be required to complete specified courses in addition to the minimum of 30 units required for the degree.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, as stated in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units of upper division and graduate courses selected with the approval of the graduate adviser. At least 24 units must be selected from courses in geography listed below as acceptable on master's degree programs of which 18 or more units must be in 200-numbered courses including Geography 210, 295, and if Plan A is elected, Geography 299. If Plan B is elected, the student must complete two research papers and a minimum of 3 units in Geography 298 and pass a final comprehensive written examination in lieu of the thesis. For either plan, a final comprehensive oral examination is required.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in geography are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of Geography: R. D. Wright, Ph.D.
Graduate Adviser: E. A. Keen

Professors: D. I. Eidemiller, Ph.D.; W. A. Finch, Jr., Ph.D.; R. W. Richardson, Ph.D.; J. W. Taylor, Ph.D.; C. C. Yahr, Ph.D.

Associate Professors: J. D. Blick, Ph.D.; N. H. Greenwood, Ph.D.; H. E. Heiges, Ph.D.; E. J. C. Kiewiet de Jonge, Ph.D.; E. A. Keen, Ph.D.; B. R. O'Brien, Ph.D.; R. D. Wright, Ph.D.

Assistant Professors: A. A. Colombo, M.A.; L. R. Ford, Ph.D.; W. A. Johnson, Ph.D.; P. R. Pryde, Ph.D.; I. E. Quastler, Ph.D.; F. P. Stutz, Ph.D.; J. L. van Beek, M.S.

COURSES ACCEPTABLE ON MASTER OF ARTS DEGREE PROGRAMS IN GEOGRAPHY

UPPER DIVISION COURSES

- | | |
|-------------------------------------------------|-----------------------------------------------------------------|
| 100A. Physical Climatology (3) | 153. Location Analysis and Geographic Theory (3) |
| 100B. Regional Climatology (3) | 155. Urban Location and Settlement Geography (3) |
| 101. Climatic Physiography (3) | 156. Internal Spatial Structure of Cities (3) |
| 102. Structural Physiography (3) | 157. Quantitative Methods of Urban Analysis (3) |
| 103. Fluvial and Eolian Physiography (3) | 158. Transportation Geography (3) |
| 104. Coastal and Submarine Physiography (3) | 159. Urban Transportation Geography (3) |
| 105. Geography of Soils (3) | 160. Advanced Transportation Geography (3) |
| 106. Geography of Soils Laboratory (1) | 171. Conservation of Natural Resources (3) |
| 107. Geography of Natural Vegetation (3) | 173. Geography as Human Ecology (3) |
| 110. Historical Geography (3) | 174. Water Resources (3) |
| 119. Geography of San Diego County (3) | 175. Geography of Recreational Land Use (3) |
| 120. California (3) | 176. Geography of Marine Resources (3) |
| 121. United States (3) | 180. Field Geography (3) |
| 122. Canada and Alaska (3) | 181A. Maps and Graphic Methods (3) |
| 123. Middle America (3) | 181B. Advanced Cartography (3) |
| 124. South America (3) | 181C. Automated Cartography (3) |
| 125. North Africa and the Near East (3) | 182. Use and Interpretation of Aerial Photographs (3) |
| 126. Europe (3) | 183. Map Investigation (3) |
| 127. Soviet Union (3) | 184. Field Geography of the Arid Southwestern United States (3) |
| 129. Oceania (3) | 185. Quantitative Methods in Geographic Research (3) |
| 130. Central and Southern Africa (3) | 188. Advanced Remote Sensing of the Environment (3) |
| 131. Eastern Asia (3) | |
| 133. Southeastern Asia (3) | |
| 134. Southern Asia (3) | |
| 150. Political Geography (3) | |
| 151. Economic Geography: Primary Production (3) | |
| 152. Industrial Geography (3) | |

GRADUATE COURSES

- 200A. Seminar in Advanced Physical Climatology (3)
Prerequisites: Geography 100A and approval of the departmental advisory committee.
Characteristics of climatic elements for a selected area or climatic type, and a statistical analysis of the elements studied. Maximum credit six units applicable on a master's degree.
- 200B. Seminar in Advanced Regional Climatology (3)
Prerequisites: Geography 100B and approval of the departmental advisory committee.
Selected regions. An interpretation of regional variations of world climatic patterns. Maximum credit six units applicable on a master's degree.
205. Geographic Research and Techniques of Presentation (3)
Prerequisite: Approval of departmental graduate advisory committee.
Seminar in the use of research materials in the different aspects of geography and the effective presentation of research findings in written and oral form. (Formerly numbered Geography 295.)
210. History of Geography (3)
Prerequisite: Approval of graduate adviser.
The evolution of concepts concerning the nature, scope, and methodology of geography.

220. **Seminar in Regional Geography (3)**
Prerequisite: Approval of departmental graduate advisory committee.
Intensive study of a major world region, such as South America, Southeast Asia and Northern Europe. Maximum credit six units applicable on a master's degree.
250. **Seminar in Systematic Geography (3)**
Prerequisite: Approval of departmental graduate advisory committee.
Intensive study of an aspect of systematic geography, such as climatology, economic geography, and graphic presentation. Maximum credit six units applicable on a master's degree.
255. **Seminar in Urban and Settlement Geography (3)**
Prerequisite: Geography 155 or 156 and approval of the departmental advisory committee.
Selected topics in urban geography. Field reconnaissance in the local urban "laboratory" is essential part of the research undertaken.
256. **Seminar in Location of Urban Activities (3)**
Prerequisites: Geography 156 and approval of the departmental advisory committee.
Systematic analysis of the locations and linkages of activities in urban areas.
258. **Seminar in Geography of Transportation (3)**
Prerequisite: Geography 158.
Directed study and research on selected topics in transportation geography.
259. **Seminar in Urban Transportation (3)**
Prerequisite: Geography 159 and approval of the departmental advisory committee.
Intensive study and research on topics in urban transportation geography. Emphasis on transport innovations and their impact on urban spatial patterns.
260. **Seminar in Spatial Structure of Transport Systems (3)**
Prerequisites: Geography 158 and approval of the departmental advisory committee.
Transportation systems and networks, optimum route patterns and commodity flows.
270. **Seminar in Theory of Resource Use (3)**
Prerequisites: Geography 7 and three units of upper division geography, or 170, or 171, and the approval of the departmental advisory committee.
272. **Seminar in Environmental Quality (3)**
Prerequisites: Geography 7 and three units of upper division geography, or 170, and the approval of the departmental advisory committee.
275. **Seminar in Recreational Geography (3)**
Prerequisites: Geography 175 and consent of departmental advisory committee. Geography 7 or 170 and 171 are recommended.
280. **Techniques of Field Research (3)**
Three lectures and three hours of laboratory.
Prerequisites: Geography 180 and approval of departmental graduate advisory committee.
Detailed and reconnaissance field work including classification of natural and cultural features and preparation of geographical reports and maps based on field data. Maximum credit six units applicable on a master's degree.
281. **Seminar in Cartography (3)**
Prerequisites: One course in cartography and approval of departmental advisory committee.
Use of the map in geographic analysis. Problems and recent trends in cartography. Maximum credit six units applicable on a master's degree.
285. **Seminar in the Use of Quantitative Methods (3)**
Prerequisites: Mathematics 18 or a higher numbered course in mathematics, Geography 185 or any upper division course in mathematics, Geography 185 or any upper division course in statistics, and approval of departmental advisory committee.
Application of quantitative methods to problems in human and physical geography. Maximum credit six units applicable on a master's degree.
288. **Seminar in Remote Sensing of the Environment (3)**
The use of remote sensing techniques in the study of man's cultural and biophysical environment.
296. **Geographic Internship (3)**
Prerequisite: Approval of the departmental graduate advisory committee, and consent of the instructor.
Students will be assigned to various government agencies and industry, and will work under joint supervision of agency heads and the course instructor.
298. **Special Study (1-3)**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.
299. **Thesis (3)**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

GEOLOGY

GENERAL INFORMATION

The Department of Geology, in the College of Sciences, offers graduate study leading to the Master of Science degree in Geology. The curriculum provides a wide variety of advanced training enabling the graduate to qualify for employment in most branches of earth science.

The present geology facilities were completed in 1960 and consist of 18,000 square feet of space equipped for classroom and laboratory instruction at both graduate and undergraduate levels and for graduate research within the basic specialties of geology, geochemistry, and geophysics. In addition to these physical facilities, the interesting and diverse geological environment of the San Diego area, and the mild climate which permits year-around field work, place San Diego State in a highly favorable location for graduate work in the geological sciences.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to classified graduate standing as described in Part Three of this bulletin under Admission to the Graduate Division. In addition, the student must have an over-all grade point average of at least 2.75 in the last 60 units of his undergraduate work and must have a preparation in geology, mathematics, chemistry, and physics at least equivalent to the minimum required for the bachelor's degree in geology at San Diego State.

ADVANCEMENT TO CANDIDACY

In addition to meeting the requirements for advancement to candidacy as described in Part Three of this bulletin, students must pass the Graduate Record Examination in Geology (Advanced Test) and have completed in undergraduate or graduate work at least one course in each of the following: field geology, paleontology, stratigraphy, structural geology, petrography, and either geochemistry or geophysics.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for classified graduate standing, the student must satisfy the basic requirements for the master's degree as described in Part Three of this bulletin. Students will normally be assigned to Plan A with the thesis, but in exceptional circumstances, Plan B with the comprehensive examination may be substituted with approval of the Department. The student's graduate program must include 24 units of 200-numbered courses in geology to include 208 (3 units), 297 (3 units), and 299, Thesis, and six units of upper division or graduate electives approved by his departmental adviser or, if Plan B is elected, 18 units of 200-numbered courses and 12 units of upper division or graduate electives. Geology 108B, Field Geology (3), or its equivalent as approved by the graduate adviser, is required as a part of the program if it was not a part of the student's undergraduate work.

ASSISTANTSHIPS

Graduate teaching assistantships in geology are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of Geology: R. G. Gastil, Ph.D.
Graduate Adviser: W. G. Libby
Professors: A. M. Bassett, Ph.D.; R. G. Gastil, Ph.D.; G. L. Peterson, Ph.D.; E. E. Roberts, Ph.D.; B. E. Thomas, Ph.D.; R. L. Threet, Ph.D.
Associate Professors: R. W. Berry, Ph.D.; Daniel Krummenacher, Ph.D.; W. G. Libby, Ph.D.; R. B. McEuen, Ph.D.; A. D. Ptacek, Ph.D.
Assistant Professors: N. O. Frederiksen, M.S.; J. P. Kern, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN GEOLOGY

UPPER DIVISION COURSES

- | | |
|-----------------------------------|-----------------------------------|
| 102. Geology of North America (3) | 124. Optical Mineralogy (3) |
| 105. Photogeology (3) | 125. Petrography (3) |
| 106. Paleontology (3) | 126. Sedimentology (3) |
| 107. Stratigraphy (3) | 130. Geochemistry (3) |
| 108B. Field Geology (4) | 131. Advanced Geochemistry (3) |
| 110. Petroleum Geophysics (3) | 140. Marine Geology (3) |
| 112. Mining Geophysics (3) | 150. Engineering Geology (3) |
| 116. Micropaleontology (3) | 160. X-ray Diffraction (3) |
| 120. Ore Deposits (3) | 173. Stratigraphic Palynology (3) |
| 121. Petroleum Geology (3) | |

Related Fields: Appropriate courses in the departments of biology, botany, chemistry, engineering, mathematics, physics, and zoology may be selected in consultation with and approval of the graduate adviser.

GRADUATE COURSES

200. Seminar (1-3)

Prerequisite: Consent of instructor.

An intensive study in advanced geology, topic to be announced in the class schedule. Maximum credit six units acceptable on a master's degree.

208. Graduate Field Geology (3)

One lecture and nine Saturday field sessions.

Prerequisite: Geology 108A.

Experience in one or more specialized aspects of field mapping.

209. Igneous Petrology (3)

Two lectures and three hours of laboratory.

Prerequisites: Geology 125 and 130.

Investigation of problems in igneous petrology, using petrography, geochemistry, and experimental methods.

211. Metamorphic Petrology (3)

Two lectures and three hours of laboratory.

Prerequisites: Geology 125 and 130.

Investigation of problems in metamorphic petrology using petrography, geochemistry, and experimental methods.

212. Sedimentary Petrology (3)

Two lectures and three hours of laboratory.

Prerequisites: Geology 124 and 126.

Investigation of problems in sedimentary petrology.

220. Biostratigraphy (3)

Two lectures and three hours of laboratory.

Prerequisite: Geology 107.

Development of concepts and practices in stratigraphic and geochronologic synthesis critically reviewed in context of current knowledge of the fossil record.

225. Paleocology (3)

Two lectures and three hours of laboratory.

Prerequisites: Geology 106 and Biology 110.

Problems and methods in the study of relationships between fossil organisms and their environment; interpretation of paleoenvironment, paleoclimate, and biologic relationships among fossil organisms.

229. Seminar: Advanced Studies in Stratigraphy (3)

Two seminars and three hours of laboratory.

Prerequisite: Geology 107.

Regional stratigraphic patterns in North America and their historical implications.

235. **Marine Processes (3)**
Prerequisite: Geology 126.
Marine erosion, transportation and deposition and their geologic consequences.
240. **Geotectonics (3)**
Prerequisite: Geology 100.
A consideration of topics on continental genesis and evolution, orogeny, geosynclinal theory, and a survey of classic geologic provinces.
245. **Advanced Structural Geology (3)**
Prerequisite: Geology 100.
Topics in advanced structural geology in the light of petrographic, geophysical, and experimental data, combined with classic field observations.
250. **Seminar: Physical Properties of Earth Materials (3)**
Prerequisite: Geology 110 or 112.
Theoretical principles and instrumental techniques used to remotely determine the physical properties of earth materials.
260. **Isotope Geology (3)**
Two lectures and three hours of laboratory.
A survey of isotopic and geochronologic topics with individual projects in isotopic analysis.
270. **Pleistocene Geology (3)**
Three lectures and field trips.
Topics in Pleistocene geology; glaciation, Pleistocene lakes and drainage, relation of geology to early man, including field investigations.
280. **Sedimentary Geochemistry (3)**
Two lectures and three hours of laboratory.
Prerequisite: Geology 130.
Problems in low temperature geochemistry, including clay mineralogy and diagenesis.
285. **Genesis of Ore Deposits (3)**
Two lectures and three hours of laboratory.
Prerequisites: Geology 120, 125, and Geology 130 or four units of physical chemistry.
Application of mineralogy, petrography, and chemistry to an understanding of the origin of ore deposits.
297. **Research (1-3)**
Prerequisite: Consent of the Department.
Supervised research in an area of geology. Maximum credit six units applicable on a master's degree.
298. **Special Study (1-3)**
Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with departmental chairman and instructor.
299. **Thesis (3)**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a thesis for the master's degree.

GERMAN

GENERAL INFORMATION

The Department of German and Russian, in the College of Arts and Letters, offers graduate study leading to the Master of Arts degree in German.

The staff in charge of the graduate program in German is composed of professors whose native tongue is German, or who are familiar with Germany through travel or intensive studies, enabling them to present authoritatively the German language and culture. Library facilities include resources in German literature and linguistics, consisting of books, periodicals and newspapers. A foreign language laboratory with modern equipment is available to both graduate and undergraduate students.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. An undergraduate major in German, including 24 upper division units, must have been completed, at least six units of which must have been in a survey course in German literature.

ADVANCEMENT TO CANDIDACY

In addition to meeting the requirements for advancement to candidacy as described in Part Three of this bulletin, students may be required to pass a qualifying examination in German given by the Department of German and Russian.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units which includes a major consisting of at least 24 units in German of which at least 15 units must be in 200-numbered courses including German 201, 290, and 299, and six units selected from German 202, 203, 204, 205, 206, 207, 208, and 210. If Plan B is followed, the student must pass a comprehensive examination in lieu of German 299.

ASSISTANTSHIPS

Graduate teaching assistantships in German are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of German and Russian: H. W. Paulin, Ph.D.
Graduate Adviser: R. H. Lawson
Credential Adviser: J. H. Wulbern
Professors: Vytas Dukas, Ph.D.; R. H. Lawson, Ph.D.; H. W. Paulin, Ph.D.; E. M. Wolf, Ph.D.
Associate Professors: Elaine E. Boney, Ph.D.; H. I. Dunkle, Ph.D.; S. C. Schaber, Ph.D.; Yoshio Tanaka, Ph.D.; W. O. Westervelt, Ph.D.; J. H. Wulbern, Ph.D.
Assistant Professors: Christa M. Cross, M.A.; H. H. Herrmann, M.A.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN GERMAN

UPPER DIVISION COURSES

- 103A-103B. German Literature of the Eighteenth Century (3-3)
105A-105B. German Literature of the Nineteenth Century (3-3)
107. German Literature from its Beginning to the Reformation (3)
110A-110B. Contemporary German Literature (3-3)
111. Contemporary German Drama (3)
115. Goethe's *Faust* (3)

- 125A-125B. Advanced Oral and Written Composition (2-2)
 130. German Syntax and Stylistics (3)
 148. Applied German Linguistics (3)
 150. German Phonology (3)
 152. Middle High German (3)

GRADUATE COURSES IN GERMAN

201. **History of the German Language** (3)
 Prerequisite: 12 units of upper division German.
 The historical development of the German language, with source readings from the Gothic Bible to Luther's translation of the Bible.
202. **Middle High German Literature** (3)
 Prerequisite: German 152.
 Reading and analysis of Middle High German literature.
203. **The German Novelle** (3)
 Prerequisite: 12 units of upper division German.
 The development of the Novelle as a literary form from Goethe to the present.
204. **The German Novel in the Twentieth Century** (3)
 Prerequisite: 12 units of upper division German.
 Selected German novels of the 20th century.
205. **German Lyric Poetry From Hölderlin to Rilke** (3)
 Prerequisite: 12 units of upper division German.
 The major German lyric poets from the beginnings of Romanticism to Rilke.
206. **The German Drama of the 19th Century** (3)
 Prerequisite: 12 units of upper division German.
 Representative works of German dramatic literature from Kleist to Hauptmann.
207. **Renaissance and Baroque Literature** (3)
 Prerequisite: 12 units of upper division German.
 German literature of the 16th and 17th centuries.
208. **Goethe** (3)
 Prerequisite: 12 units of upper division German.
 Goethe's lyric, epic, and dramatic poetry excluding *Faust*.
210. **Schiller** (3)
 Prerequisite: 12 units of upper division German.
 Schiller as poet, dramatist, critic and philosopher, with emphasis on his classical period.
251. **Seminar in Eighteenth-Century Literature** (3)
 Prerequisite: 18 units of upper division German.
 Directed research in the works of an important author or in a problem, type, or movement of German literature of the eighteenth century. Maximum credit six units applicable on a master's degree.
255. **Seminar in Nineteenth-Century Literature** (3)
 Prerequisite: 18 units of upper division German.
 Directed research in the works of an important author or in a problem, type, or movement of German literature of the nineteenth century. Maximum credit six units applicable on a master's degree.
260. **Seminar in Twentieth-Century Literature** (3)
 Prerequisite: 18 units of upper division German.
 Directed research in the works of an important author or in a problem, type, or movement of German literature of the twentieth century. Maximum six units applicable on a master's degree.

265. Seminar in Germanic Linguistics (3)

Prerequisite: 18 units of upper division or graduate German.
 Directed research in a specialized area of Germanic linguistics or philology. Maximum credit six units applicable to a master's degree.

290. Research and Bibliography (3)

Prerequisite: 12 units of upper division German.
 Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.

297. Research (3)

Prerequisite: Advancement to candidacy.
 Individual research in a specialized subject in German literature or linguistics.

298. Special Study (1-3)

Individual study. Six units maximum credit.
 Prerequisites: 18 units of upper division German and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.
 Preparation of a project or thesis for the master's degree.

HEALTH SCIENCE AND SAFETY

GENERAL INFORMATION

The Department of Health Science and Safety, in the College of Professional Studies, offers graduate study leading to the Master of Arts degree in Health Science.

Close liaison among the departments concerned and with community agencies provides opportunities for realistic field experiences.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, which are described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing, the student must satisfy the basic requirements for the Master of Arts degree as described in Part Three of this bulletin. The concentration consists of 21 units in Health Science and Safety selected from those listed as applicable on master's degree programs, 15 of which must be in 200-numbered courses, including 299, Thesis. In addition, all programs must include Education 211.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in health science and safety are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of Health Science and Safety: W. C. Burgess, Ed.D.

Credential Adviser: W. C. Burgess

Graduate Adviser: A. C. McTaggart

Professors: W. C. Burgess, Ed.D.; R. M. Grawunder, Ed.D.; L. A. Harper, Ed.D.; A. C. McTaggart, Ph.D.

Associate Professors: W. D. Boskin, Ed.D.; Stanford Fellers, Ed.D.

Assistant Professors: A. C. Barnes, Jr., H.S.D.; S. J. Bender, H.S.D.; R. N. Collins, Ed.D.; R. H. Grant, Ed.D.; L. P. Kessler, MA.; V. J. Noto, H.S.D.; W. D. Sorochan, Ed.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN HEALTH SCIENCE

UPPER DIVISION COURSES

- | | |
|------------------------------------------------------|-------------------------------------------------------|
| 145. Safety Education and Accident Prevention (3) | 160. Introduction to Public Health (3) |
| 151. Health Education for Secondary Teachers (2) | 169. World Health (3) |
| 153. Administration of the School Health Program (3) | 172. Habit Forming Substances (3) |
| 154. Workshop in Health Science and Safety (1-3) | 175. Health in Later Maturity (3) |
| 155. Sex Education in the Schools (3) | 176. Health and Medical Care (3) |
| | 192. Critical Analysis of Professional Literature (3) |
| | 197. Supervised Field Experience (1-3) |

GRADUATE COURSES

200. Seminar (3)

Prerequisite: Fifteen units completed in Health Science and Safety.
An intensive study of advanced problems in health education. Maximum credit six units applicable on a master's degree.

201. Interdisciplinary Factors in Health Education (3)

Prerequisite: Fifteen units completed in Health Science and Safety.
Synthesis of basic scientific and cultural principles which contribute to an understanding of human well-being and how it is deliberately influenced.

202. Measurement and Evaluation in Health Education (3)

Prerequisite: Health Science and Safety 153.
General and specific approaches to measurement in Health Education; data gathering techniques; organization, presentation, and interpretation of data; basic principles of evaluation of student achievement.

240. Administration of Traffic Safety Education (3)

Prerequisites: Health Science and Safety 145 and 147.
Research and trends in traffic safety education with emphasis on the problems of organization and administration.

245. School Safety Programs and Procedures (3)

Prerequisite: Health Science and Safety 145.
Advanced consideration of school safety programs including legal bases and requirements, personnel responsibilities, liability, instruction, maintenance, and school transportation.

270. Problems in Disease Control (3)

Prerequisite: Health Science and Safety 165.
New concepts in the community management of disease. Individual investigation and discussion.

271. Drug Abuse Education (3)

Prerequisite: Health Science and Safety 172.
Drug abuse education in the school and community.

298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department special study adviser and instructor.
Individual study. Six units maximum credit.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

HISTORY

GENERAL INFORMATION

The Department of History, in the College of Arts and Letters, offers graduate study leading to the Master of Arts degree in History, and to the Master of Arts degree for teaching service with a concentration in History.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division. As an additional requirement, the student must have completed a bachelor's degree with an undergraduate major in history. Applicants who have an undergraduate major in social studies with a concentration of 18 or more upper division units in history will, with the advice of the departmental representative and the recommendation of the department, be acceptable, but will be held responsible for completing the minimum requirements for an undergraduate major in history.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, including the foreign language requirement, as stated in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes a major consisting of at least 24 units in history from courses listed below as acceptable on the master's degree programs, at least 18 of which must be in 200-numbered courses. Students may elect either Plan A or Plan B with the consent of the Graduate Adviser. Required courses are History 201, six units in the History 240 series, three units in the History 250 series, History 297, and History 299. Students electing Plan B must enroll in History 296 (six units) in lieu of History 297 and History 299 and pass a comprehensive examination in both a major and minor field of history chosen in consultation with the Graduate Adviser.

Three additional units in the History 250 series may be substituted for History 201 (in either Plan A or Plan B) with the consent of the Graduate Adviser. Students are required to demonstrate a reading knowledge of a relevant foreign language.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE FOR TEACHING SERVICE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes a major consisting of at least 24 units in history from courses listed below as acceptable on the master's degree programs, at least 18 of which must be in 200-numbered courses. Students may elect either Plan A or Plan B with the consent of the Graduate Adviser. Required courses are History 201, six units in the History 240 series, three units in the History 250 series, History 297, and History 299. Students electing Plan B must enroll in History 296 (six units) in lieu of History 297 and History 299 and pass a comprehensive examination in both a major and minor field of history chosen in consultation with the Graduate Adviser.

Three additional units in the History 250 series may be substituted for History 201 (in either Plan A or Plan B) with the consent of the Graduate Adviser.

SCHOLARSHIPS

The K. W. Stott Scholarship, in the amount of \$100, is awarded each June to a student who has attended San Diego State for at least two years and who is being graduated or who has been graduated by San Diego State with a major in history. The recipient must continue work in San Diego State or in any other accredited college or university, toward a higher degree or credential. The selection is made by the Department of History with approval of the Committee on Scholarships.

FACULTY

Chairman, Department of History: D. E. Berge, Ph.D.

Graduate Adviser: A. W. Schatz (Coordinator); A. P. Nasatir; R. T. Smith, Jr.; J. L. Stoddart

Credential Adviser: D. S. Milne

Professors: D. E. Berge, Ph.D.; A. D. Coox, Ph.D.; W. F. Hanchett, Ph.D.; J. E. Merrill, Ph.D.; R. L. Munter, Ph.D.; A. P. Nasatir, Ph.D.; N. F. Norman, Ph.D.; S. J. Pincetl, Jr., Ph.D.; D. L. Rader, Ph.D.; Katherine M. Ragen, Ph.D.; L. U. Ridout, Ph.D.; K. J. Rohfleisch, Ph.D.; R. T. Ruetten, Ph.D.

Associate Professors: Joyce Appleby, Ph.D.; W. F. Cheek, Ph.D.; T. R. Cox, Ph.D.; A. W. Schatz, Ph.D.; C. D. Smith, Ph.D.; R. T. Smith, Ph.D.; R. C. Starr, Ph.D.; R. W. Steele, Ph.D.; Douglas Strong, D.S.S.; D. J. Weber, Ph.D.

Assistant Professors: F. M. Bartholomew, Ph.D.; Paochin Chu, Ph.D.; R. L. Cunniff, Ph.D.; R. C. Detweiler, Ph.D.; T. M. Davies, Jr., Ph.D.; R. E. Dunn, Ph.D.; P. F. Flemion, Ph.D.; O. K. Hoidal, Ph.D.; A. C. O'Brien, Ph.D.; F. N. Stites, Ph.D.; J. L. Stoddart, Ph.D.; J. N. Sutherland, Ph.D.; P. J. Vanderwood, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN HISTORY

UPPER DIVISION COURSES

- | | |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 101A-101B. The Contemporary World in Historical Perspective (3-3) | 152A-152B. Constitutional History of England (3-3) |
| 102. Great Historians and Historical Literature (3) | 153A-153B. Tudor and Stuart England (3-3) |
| 105A-105B. War and Civilization (3-3) | 154A-154B. Modern Britain (3-3) |
| 111A-111B. Ancient History (3-3) | 155A-155B. History of the British Empire and Commonwealth (3-3) |
| 121A-121B. Europe in the Middle Ages (3-3) | 157A-157B. History of the Near East from the 7th Century to Modern Times (3-3) |
| 122. The Holy Roman Empire to the Great Interregnum (3) | 158A-158B. Africa (3-3) |
| 123. The Byzantine Empire (3) | 160A-160B. Latin America (3-3) |
| 131A-131B. Renaissance and Reformation (3-3) | 161A-161B. Mexico (3-3) |
| 133A-133B. Europe in the 17th and 18th Centuries (3-3) | 162A-162B. History of Brazil (3-3) |
| 135A-135B. Europe in the 19th Century (3-3) | 163A-163B. The Caribbean Area (3-3) |
| 136A-136B. Intellectual History of Europe in the 19th Century (3-3) | 164. The Pacific Coast Nations of South America (3) |
| 137A-137B. Europe in the 20th Century (3-3) | 165A-165B. Economic, Social, and Intellectual Development of Latin America (3-3) |
| 138A-138B. Diplomatic History of Modern Europe (3-3) | 167A-167B. Diplomatic History of Latin America (3-3) |
| 141A-141B. History of Scandinavia (3-3) | 168. The Platine Nations (3) |
| 142A. The French Revolution and Napoleonic Era (3) | 171A-171B. Rise of the American Nation (3-3) |
| 142B. Modern France (3) | 172A-172B. Development of the Federal Union (3-3) |
| 143A-143B. The Iberian Peninsula (3-3) | 173A-173B. Civil War and Reconstruction: The United States from Jackson to Grant (3-3) |
| 145A-145B. Central and Eastern Europe (3-3) | 174. The Rise of Modern America, 1868-1900 (3) |
| 146A-146B. Germany and Central Europe (3-3) | 175A-175B. The United States, 1901-1945 (3-3) |
| 147A-147B. Russia and the Soviet Union (3-3) | 175C. The United States in the Nuclear Age (3) |
| 149. Modern Italy (3) | 176A-176B. American Foreign Policy (3-3) |
| 151A-151B. England (3-3) | 177A-177B. Constitutional History of the United States (3-3) |

- 178A-178B. The Development of American Capitalism (3-3)
 179A-179B. Intellectual History of the American People (3-3)
 180. Selected Studies in History (3)
 181A-181B. The Westward Movement (3-3)
 182A-182B. The Spanish Borderlands and the American Southwest (3-3)
 183A-183B. Black American Civilization (3-3)
 185. Conservation History of the United States (3)
- 189A-189B. California (3-3)
 190A-190B. Southeast Asia (3-3)
 191A-191B. The Far East (3-3)
 192. Chinese Civilization (3)
 193. China in Modern Times (3)
 194. Japanese Civilization (3)
 195. Rise of Japan as a Modern State (3)
 196A-196B. The Indian Sub-Continent (3-3)
 197A-197B. Intellectual History of Modern Asia (3-3)

GRADUATE COURSES

All graduate courses in the Department of History have a prerequisite of 12 units of upper division courses in history, or consent of the instructor.

201. Seminar in Historical Method (3)
 General historical bibliography. The use of libraries and archives. Methods of critical historical investigation. The interpretations of history.
202. Seminar in Historiography (3)
 A critical study of the works of major historians, their philosophies and the schools of scholarship associated with their work.
240. Directed Reading in Selected Topics (3)
 Prerequisite: Permission of the instructor.
 Selected readings in source materials and historical literature of various fields of history such as war, science, technology, urbanization, minority groups, immigration, capitalism, conservation, and imperialism. Maximum of six units applicable to the master's degree.
241. Directed Reading in United States History (3)
 Prerequisite: Six upper division units in United States history.
 Selected readings in source materials and historical literature in a designated area of United States history. Maximum credit six units applicable on a master's degree.
242. Directed Reading in European History (3)
 Prerequisite: Six upper division units in European history.
 Selected readings in source materials and historical literature in a designated area of European history. Maximum credit six units applicable on a master's degree.
243. Directed Reading in Asian History (3)
 Prerequisite: Six upper division units in Asian history.
 Selected readings in source materials and historical literature in a designated area of Asian history. Maximum credit six units applicable on a master's degree.
244. Directed Reading in Latin American History (3)
 Prerequisite: Six upper division units in Latin American history.
 Selected readings in source materials and historical literature in a designated area of Latin American history. Maximum credit six units applicable on a master's degree.
245. Directed Reading in African and Middle Eastern History (3)
 Prerequisite: Six upper division units in African or Middle Eastern history.
 Selected readings in source materials and historical literature in a designated area of African or Middle Eastern history. Maximum of six units applicable on a master's degree. (Formerly titled Directed Reading in African History.)

246. Directed Reading in Ancient and Medieval History (3)
 Prerequisite: Six upper division units in Ancient or Medieval history.
 Selected readings in source materials and historical literature in a designated area of Ancient or Medieval history. Maximum of six units applicable to a master's degree.
250. Seminar in the Philosophy of History (3)
 The major philosophies of history and directed research on topics selected from various philosophers of history such as Bury, Collingwood, Croce, Freud, Hegel, Marx, Pareto, Sorokin, Spengler, and Toynbee.
251. Seminar in United States History (3)
 Prerequisite: Six upper division units in United States history.
 Directed research on topics selected from a designated area of United States history. Maximum credit six units applicable on a master's degree.
252. Seminar in European History (3)
 Prerequisite: Six upper division units in European history.
 Directed research on topics selected from a designated area of European history. Maximum credit six units applicable on a master's degree.
253. Seminar in Asian History (3)
 Prerequisite: Six upper division units in Asian history.
 Directed research on topics selected from a designated area of Asian history. Maximum credit six units applicable on a master's degree.
254. Seminar in Latin American History (3)
 Prerequisite: Six upper division units in Latin American history.
 Directed research on topics selected from a designated area of Latin American history. Maximum credit six units applicable on a master's degree.
255. Seminar in African and Middle Eastern History (3)
 Prerequisite: Six upper division units in African or Middle Eastern history.
 Directed research on topics selected from a designated area of African or Middle Eastern history. Maximum of six units applicable to a master's degree. (Formerly titled Seminar in African History.)
256. Seminar in Ancient and Medieval History (3)
 Prerequisite: Six upper division units in Ancient or Medieval history.
 Directed research on topics selected from a designated area of Ancient or Medieval history. Maximum of six units applicable to a master's degree.
296. Area Studies in History (1-3)
 Preparation for the comprehensive examinations in the major and minor fields of history for those students taking the M.A. under Plan B. Maximum credit six units applicable on a master's degree.
297. Research (3)
 Prerequisite: Advancement to candidacy and written approval of the History Department graduate coordinator.
 Independent research in a specialized subject in history.
298. Special Study (1-3)
 Individual study. Six units maximum credit.
 Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
299. Thesis (3)
 Prerequisites: An officially appointed thesis committee and advancement to candidacy.
 Preparation of a project or thesis for the master's degree.

HOME ECONOMICS

GENERAL INFORMATION

The Department of Home Economics, in the College of Professional Studies, offers graduate study leading to the Master of Science degree in Home Economics.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing as described in Part Three of this bulletin under Admission to the Graduate Division. In addition, the student must have a bachelor's degree in home economics, or a related field, and meet the prerequisites of the courses selected. If a student's undergraduate preparation is deemed insufficient, he will be required to complete specified courses in addition to the minimum of 30 units required for the master's degree in Home Economics.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units which includes at least 24 units from courses listed below as acceptable on master's degree programs in home economics, of which at least 15 units must be in 200-numbered courses in home economics, including Home Economics 290, Bibliography and Methods of Research, and Home Economics 299, Thesis.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in home economics are available to a limited number of qualified students. Application blanks and additional information may be secured from the chairman of the department.

FACULTY

Chairman, Department of Home Economics: Don W. Thiel, Ph.D.

Graduate Adviser: Don W. Thiel

Credential Adviser: Kathleen J. Martin

Professors: Nona H. Cannon, Ed.D.; Helen L. Doris, M.S.; Don W. Thiel, Ph.D.; Alice E. Thomas, M.A.

Associate Professors: Zoe E. Anderson, Ph.D.; Quentin Lee Price, Ph.D.; Thelma R. Reed, Ph.D.; Rose M. Somerville, Ph.D.

Assistant Professors: Mary E. Dickerson, M.S.; Barbara E. Gunning, Ph.D.; Kaye Hambleton, M.A.; Nancy B. Kawallek, M.S.; Kathleen J. Martin, M.S.; Mary F. Martin, M.S.; Thair S. Milne, M.S.; Ruth I. Morris, M.A.; Cherie Schupp, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN HOME ECONOMICS

UPPER DIVISION COURSES

- | | |
|---------------------------------------------------------|------------------------------------------------------------|
| 102. Advanced Nutrition (3) | 140. Family Financial Problems and Practices (3) |
| 103. Quantity Cookery (3) | 145. Family Housing (3) |
| 104. Institutional Food Organization and Management (3) | 153. Supervised Field Work in Home Management (3) |
| 105. Experimental Foods (3) | 170. Human Development: Infancy (3) |
| 106. Diet Therapy (3) | 175. The Nursery School Program (3) |
| 118. Flat Pattern Design (3) | 177. Administration and Supervision in Nursery Schools (3) |
| 119. Textile Analysis and Testing (3) | 179. Advanced Child Study (3) |
| 120. Clothing and Human Behavior (3) | 190. Advanced Studies in Home Economics (2-6) |
| 121. Clothing Design: Draping (3) | |
| 122. Clothing Design: Historical Influences (3) | |
| 136. Family Study (3) | |

GRADUATE COURSES

200. Seminar: Foods and Nutrition (3)
Prerequisites: Home Economics 100 and 102.
An intensive study of research in technological advances in the fields of foods and nutrition, with emphasis on professional organizations and ethical procedures.
203. Advanced Readings in Food Technology (3)
Prerequisite: Home Economics 100.
Reading and analysis of selected research in food technology.
204. Advanced Readings in Nutrition (3)
Prerequisite: Home Economics 102.
Reading and analysis of selected research in nutrition.
205. Assay for Nutrients in Foodstuffs and Tissues (3)
Two lectures and three hours of laboratory.
Prerequisites: Home Economics 100 and 102.
Determinations of energy values, organic nutrients, and minerals in foodstuffs and tissues by chemical, biological, and microbiological methods.
206. Physiological Bases of Diet Therapy (3)
Prerequisite: Home Economics 106. Chemistry 115B or 116B is recommended.
The biochemical and/or physiological lesions in pathological states and the modifications of diet which should accompany medical treatment to prevent or alleviate patient symptoms.
207. Child Nutrition (3)
Two lectures and three hours of laboratory.
Prerequisite: Home Economics 102.
Nutrition, health and biochemical growth in children. Conditions leading to malnutrition, the prevention and correction of same.
215. Seminar: Clothing (3)
Prerequisites: Nine units in the area of clothing.
Selected problems in the field of clothing.
216. Seminar: Textiles (3)
Prerequisites: Home Economics 119 and consent of instructor.
Current literature and experimental research in fiber and fabric technology related to consumer use.
219. History of Textiles and Clothing (3)
Prerequisite: Six units in art, anthropology, sociology, or psychology.
Textile and clothing development from ancient times to the present as related to socio-economic and political influences.

231. Family Life Education (3)

Prerequisite: Three units in Family Relations.
Methods and materials in family life education for schools, colleges, churches, and social agencies.

234. Seminar: Marriage Adjustment (3)

Prerequisite: Home Economics 135.
Individual study, seminar reports, and group discussion of selected topics in marriage adjustment.

240. Seminar in Family Economics (3)

Prerequisite: Upper division course in family finance.
Personal financial practices under changing conditions. Review of literature in family financial management.

251. Seminar in Home Management (3)

Prerequisite: Upper division course in home management and related areas.
Recent research in home management.

270. Seminar: Child Development and Guidance (3)

Prerequisite: Consent of instructor.
Emphasis on personality theories and on research and clinical findings relevant to a systematic study of human development and the guidance of children.

271. Advanced Readings in Human Development (3)

Prerequisites: Home Economics 70 and 179.
Analysis of selected research in human development.

281. Seminar: Home Economics Education (3)

Prerequisites: 18 units in Home Economics and consent of instructor.
The study and evaluation of Home Economics research and philosophical principles which have implications for the secondary homemaking teacher.

282. Current Development in Home Economics Education (3)

Prerequisites: Education 121C or the equivalent, and 18 units in Home Economics.
Current issues and recent developments in home economics education with implications for secondary and post high school programs.

290. Bibliography and Methods of Research (3)

Prerequisite: 12 upper division or graduate units in Home Economics.
Reference materials, bibliography, investigation of current research in home economics, processes of thesis topic selection, and techniques of scholarly writing.

298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units of maximum credit.

299. Thesis (3)

Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

INDUSTRIAL ARTS

GENERAL INFORMATION

The Department of Industrial Arts, in the College of Professional Studies, offers graduate study leading to the Master of Arts degree in Industrial Arts. The Department of Industrial Arts makes it possible for students to gain advanced experiences in two of the most modern industrial arts buildings in the West. Well equipped instructional facilities are devoted to work in woods, metals, transportation, graphic arts, electricity-electronics, photography, industrial drawing, comprehensive industrial arts and industrial crafts.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division.

ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units which includes a major consisting of a minimum of 24 units in industrial arts from courses listed below as acceptable on the master's degree program. The program must contain at least 24 units of 200-numbered courses, including Industrial Arts 221, 222, 223, and 224, and either Industrial Arts 299 (Plan A) or 295 (Plan B). Students electing Plan B must pass a comprehensive examination upon completion of Industrial Arts 295 and in lieu of the thesis.

ASSISTANTSHIPS

Graduate teaching assistantships in industrial arts are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of Industrial Arts: W. L. McLoney, Ed.D.
Graduate Adviser: F. J. Irgang
Credential Adviser: F. J. Irgang
Professors: W. C. Anderson, Ph.D.; F. J. Irgang, Ph.D.; W. L. McLoney, Ed.D.; J. D. McMullen, Ed.D.; D. W. Thiel, Ph.D.
Associate Professors: Edward Aguirre, Ed.D.; G. D. Bailey, Ed.D.; G. K. Hammer, Ed.D.; J. J. Simons, Ed.D.
Assistant Professors: D. A. Dirksen, Ed.D.; W. D. Guentzler, M.A.; H. L. Marsters, M.A.; R. H. McEowen, Ed.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN INDUSTRIAL ARTS

UPPER DIVISION COURSES

- | | |
|--------------------------------------------------------|-----------------------------------------------------|
| 103. Advanced Industrial Crafts (3) | 164. Basic Digital Computers (3) |
| 112. Organization of Comprehensive Industrial Arts (3) | 173. Industrial Arts Transportation (3) |
| 117. Advanced Industrial Arts Plastics (3) | 183. Industrial Arts Graphic Arts (3) |
| 123. Industrial Arts Drawing (3) | 190. Experimental Industrial Arts (1 or 2) |
| 133. Industrial Arts Metalworking (3) | 194. Recent Trends in Industrial Arts Education (2) |
| 140. Photography for Teachers (3) | |
| 153. Industrial Arts Woodworking (3) | |

GRADUATE COURSES

200. Seminar (3)
An intensive study in industrial arts, topic to be announced in the class schedule.
201. Advanced Teaching Problems (3)
Prerequisites: Teaching experience in area selected and consent of instructor. Materials and advanced techniques of teaching specific activity areas, such as (a) industrial drawing; (b) general metalworking; (c) general woodworking; (d) electricity-radio; (e) transportation; (f) graphic arts; (g) photography; (h) comprehensive industrial arts. Stress on project design and visual materials. Maximum credit six units applicable on a master's degree.
202. Industrial Arts Problems in Graphics and Design (3)
One lecture and six hours laboratory.
Prerequisite: Industrial Arts 123.
The theories and procedures of industrial drafting, including nomographs, descriptive geometry, and graphic solutions. Emphasis on special applications to industrial arts.
203. Industrial Arts Problems in Metalworking (3)
One lecture and six hours laboratory.
Prerequisite: Industrial Arts 133.
Problems involved in industrial arts metalworking. Individual research project dealing with instructional materials or processes.
204. Problems in Photography (3)
One lecture and six hours laboratory.
Prerequisite: Industrial Arts 142, 143, or 144.
Advanced problems in photography in industry and photography in education. Individual research project dealing with instructional materials or industrial processes.
205. Industrial Arts Problems in Woodworking (3)
One lecture and six hours laboratory.
Prerequisite: Industrial Arts 153.
Intensive study in selected areas of the woodworking industry as it relates to materials, production, and construction. Presentation of research findings.
206. Problems in Electronics (3)
One lecture and six hours laboratory.
Prerequisite: Industrial Arts 163.
Recent developments in the electronics areas. Special research projects and resource materials.
207. Industrial Arts Problems in Transportation (3)
One lecture and six hours laboratory.
Prerequisite: Industrial Arts 173.
Research in selected areas of the transportation industry and effective presentation of findings in oral and written form.
208. Industrial Arts Problems in Graphic Arts (3)
One lecture and six hours laboratory.
Prerequisite: Industrial Arts 183.
Selected areas of the graphic arts industry related to materials, production methods, and allied pursuits. Techniques of presentation of findings in effective written and oral form.
215. Problems in Plastics (3)
One lecture and six hours laboratory.
Prerequisite: Industrial Arts 117.
Research with selected plastics processes and materials. Development of projects, aids, resource materials, oral and written presentations.

220. History and Philosophy of Industrial Education (3)
A study of the philosophical foundations and development of industrial education and its continuing role in American culture. Contemporary practices and trends will be given consideration.
221. Curriculum Construction in Industrial Arts Education (3)
Selection of teaching content for school situations in compliance with the best known procedures regarding analysis, objectives, methods and learning, and development of instructional devices related directly to course content.
222. Instructional Resources for Industrial Arts Education (3)
Survey, selection, and compilation of materials used in the development of resource units for instruction in industrial education, involving publications, organized talks, field trips, visual materials, technical literature and related materials. Organization and evaluation of such materials.
223. Evaluation in Industrial Arts Education (3)
Principles, methods, and criteria of evaluation including the special problems of measuring growth, achievement, and performance in various phases of industrial education.
224. Organization, Administration and Supervision of Industrial Education Programs (3)
The principles, objectives, methods and techniques employed in the supervision of industrial education programs. Emphasis on organizing and administering programs at all levels in industry and education.
267. Field Work in Industrial Arts (3)
Prerequisites: Teaching experience in industrial arts and consent of instructor. Application of the principles of laboratory organization, management, and planning in reference to the objectives of industrial arts in development of school programs.
290. Research Procedures in Industrial Arts (3)
Location, selection, and analysis of scientific and professional literature, research data and specialized bibliographies.
295. Selected Topics in Industrial Arts (3)
Prerequisites: Industrial Arts 290 and advancement to candidacy for the Master of Arts degree.
Study in selected topics of Industrial Arts culminating in a research paper.
298. Special Study (1-3)
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.
299. Thesis (3)
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis in industrial arts for the master's degree.

LATIN AMERICAN STUDIES

GENERAL INFORMATION

The Master of Arts degree in Latin American Studies is an interdisciplinary degree offered by designated faculty members in the Departments of Anthropology, Economics, Geography, History, Political Science, and Spanish and Portuguese. It is administered by the Center for Latin American Studies.

The program is designed to provide a systematic advanced training (a) for those planning to enter business or government service in the Latin American field, and (b) for those in a specific academic discipline who have a regional interest in Latin America. It is not intended as a complete vocational preparation.

ADMISSION TO THE GRADUATE DIVISION

In addition to meeting the requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division, the student must present the Bachelor of Arts degree with not less than 18 units of courses of Latin American content in three areas. The student must demonstrate an adequate reading knowledge of Spanish for admission to the program, through either course work or examination, as determined by the Latin American Studies Committee. A reading knowledge of Portuguese is recommended. A student whose preparation is deemed insufficient by his graduate adviser or by the Latin American Studies Committee will be required to complete specified courses in addition to the minimum of 30 units required for the degree.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS PROGRAM

In addition to meeting the requirements for classified graduate standing and the basic requirements for the Master of Arts degree, as described in Part Three of this bulletin, the student must complete at least 30 units of upper division and graduate course work with not less than 24 units in courses of Latin American content, distributed as follows:

	200-numbered Courses	200-numbered or Upper Division Courses
Department A	6 units	6 units
Department B	3 units	3 units
Department C	3 units	3 units
	12 units	12 units

The remaining units, 3 of which must be in 200-numbered courses, will be elective, as approved by the graduate adviser. A comprehensive examination in lieu of a thesis is required (Plan B).

All programs will be approved by the Latin American Studies Committee.

COMMITTEE ON LATIN AMERICAN STUDIES

P. F. Flemion, *Chairman*
A. J. O. Anderson
E. M. Barrera
J. D. Blick
T. E. Case
N. C. Clement
R. L. Cunniff
T. M. Davies, Jr.
W. A. Finch, Jr.
Victor Goldkind
G. L. Head
J. M. Jutkowitz

J. B. Kelley
George Lemus
A. P. Nasatir
L. V. Padgett
J. C. Pollock
G. V. Segade
P. J. Vanderwood
C. G. Velez
D. J. Weber
Raymond Weeter
H. H. Windsor, III

FACULTY

Graduate Coordinator: J. D. Blick

Graduate Advisers:

Anthropology: A. J. O. Anderson
Economics: N. C. Clement
Geography: W. A. Finch, Jr.

History: A. P. Nasatir
Political Science: J. C. Pollock
Spanish: George Lemus

Faculty members in the departments participating in the degree program are listed in the appropriate sections of this Bulletin.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN LATIN AMERICAN STUDIES

UPPER DIVISION COURSES

- Anthropology*
157. Meso-American Ethno-history (3)
162. Cultures of South America (3)
163. Contemporary Latin America Cultures (3)
169-S. Backgrounds of Mexican Civilization (3)
180. Preclassic Aboriginal Civilizations of Mid-America (3)
181. Classic Pre-Columbian Civilizations of Mid-America (3)
182. Post-Conquest Cultures of Middle America (3)
- Economics*
114. Economic Problems of Latin America (3)
195. International Economics—Problems (3)
196. Economics of Underdeveloped Areas (3)
- Geography*
123. Middle America (3)
124. South America (3)
198. Directed Readings in Geographic Literature (1)
160A-160B. Latin America (3-3)
161A-161B. Mexico (3-3)
162A-162B. History of Brazil (3-3)
163A-163B. The Caribbean Area (3-3)
- History*
164. The Pacific Coast Nations of South America (3)
165A-165B. Economic, Social, and Intellectual Development of Latin America (3-3)
167A-167B. Diplomatic History of Latin America (3-3)
168. The Platine Nations (3)
- Political Science*
175. International Relations of the Latin American States (3)
184. The Mexican Political System (3)
194. Political Change in Latin America (3)
195. Political Systems of Latin America (3)
- Portuguese*
135. Brazilian Literature (3)
- Spanish*
- 104A-104B. Spanish-American Literature (3-3)
106A-106B. Mexican Literature (3-3)
107. Caribbean Area Countries Literature (3)
108. Andean Countries Literature (3)
109. River Plate Literature (3)
170. Spanish-American Poetry (3)
171. Spanish-American Short Story (3)
172. Spanish-American Theatre (3)

APPLICABLE GRADUATE COURSES

Refer to graduate course descriptions in the sections of this Bulletin under the Departments of Anthropology, Economics, Geography, History, Political Science, and Spanish and Portuguese.

- Anthropology*
200. Seminar (when of Latin American content) (3)
255. Culture and Society in the Nahua Area (3)
256. Cultures and Societies in Southern Meso-America and Central America (3)
257. Classical Nahuatl (3)
- Economics*
295. Seminar in International Economics (when Latin America included) (3)
296. Seminar in the Economics of Underdeveloped Countries (3)
- Geography*
220. Seminar in Regional Geography (when topic is Latin America) (3)

- History*
244. Directed Reading in Latin American History (3)
254. Seminar in Latin American History (3)

- Political Science*
280. Seminar in Comparative Government (when Latin America included) (3)
283. Seminar in Latin American Political Systems (3)

- Spanish*
204. The Spanish-American Novel (3)
205. The Gaucho Epic (3)
206. Modernism (3)
209. The Spanish-American Essay (3)
210. Contemporary Spanish-American Prose Fiction (3)
250. Seminar in Spanish-American Literature (3)
255. Seminar in Spanish-American Culture and Thought (3)

LINGUISTICS

GENERAL INFORMATION

The Master of Arts degree in Linguistics is an interdisciplinary degree offered by designated faculty members of the Departments of Anthropology, English, French, German and Russian, Philosophy, and Spanish and Portuguese. It is administered by the Linguistics Committee.

The program is designed to provide systematic advanced training in the field of linguistics, which is increasingly relevant to our humanistic-scientific culture. It is not intended as a complete vocational preparation.

ADMISSION TO THE GRADUATE DIVISION

In addition to meeting the requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin, the student must present the Bachelor of Arts degree in Liberal Arts and Sciences at San Diego State or its equivalent. A student whose preparation is deemed insufficient by his graduate adviser or by the Linguistics Committee will be required to complete specified courses in addition to the minimum of 30 units required for the degree.

ADVANCEMENT TO CANDIDACY

All candidates must satisfy the general requirements for advancement to candidacy as described in Part Three of this bulletin. In addition, a reading and speaking knowledge of at least one foreign language must be demonstrated prior to advancement to candidacy.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the Master of Arts degree, as described in Part Three of this bulletin, the student must complete at least 30 units of upper division and graduate course work to include:

- a. Required courses:
Three units chosen from Anthropology 120, Introduction to Anthropological Linguistics, Anthropology 124, Descriptive Linguistics, English 184, Phonemics and Morphemics;
Three units chosen from English 182, American English, English 180, The English Language, General Language 196, General Linguistics, Philosophy 131, Philosophy of Language;
English 183, English Linguistics, three units;
Three units of graduate seminar: English 295, Seminar in Linguistics, plus three more units chosen from English 295, 220, or German 265, Seminar in Germanic Linguistics;
Six units chosen from English 220, Indo-European, English 223, Old English, Anthropology 222, Historical Linguistics, French 201, History of the French Language, German 201, History of the German Language, Russian 201, History of the Russian Language, Russian 202, Old Church Slavic, Spanish 201, History of the Spanish Language;
English 299, Thesis, three units.
- b. Six units of electives, three units of which must be in 200-numbered courses approved by the student's adviser.

All programs will be approved by the Linguistics Committee, or by the graduate adviser(s) designated by the Committee.

LINGUISTICS COMMITTEE

O. D. Seright, Chairman
T. S. Donahue
G. F. Drake
L. H. Frey

R. H. Hendrickson
R. H. Lawson
Yoshio Tanaka
J. N. Tidwell

FACULTY

Coordinator of Graduate Programs in Linguistics: O. D. Seright
Faculty members in the departments participating in this degree program are listed in the appropriate sections of this Bulletin.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN LINGUISTICS

UPPER DIVISION COURSES

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><i>Anthropology</i></p> <p>120. Introduction to Anthropological Linguistics (3)</p> <p>122. Language in Culture (3)</p> <p>124. Descriptive Linguistics (3)</p> <p><i>General Language</i></p> <p>196. General Linguistics (3)</p> <p><i>English</i></p> <p>180. The English Language (3)</p> <p>181. The Structure of English (3)</p> <p>182. American English (3)</p> <p>183. English Linguistics (3) (same course as General Language 197)</p> <p>184. Phonemics and Morphemics (3)</p> | <p><i>French</i></p> <p>150. Advanced Phonetics and Diction (3)</p> <p><i>German</i></p> <p>150. German Phonology (3)</p> <p>152. Middle High German (3)</p> <p><i>Philosophy</i></p> <p>131. Philosophy of Language (3)</p> <p><i>Russian</i></p> <p>131. Russian Phonology and Morphology (2)</p> <p><i>Spanish</i></p> <p>149. Spanish Linguistics (3)</p> <p>150. Phonetics and Phonemics (3)</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

APPLICABLE GRADUATE COURSES

Refer to graduate course descriptions in the sections of this bulletin under the Departments of Anthropology, English, French, German and Russian, Philosophy, and Spanish and Portuguese.

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><i>Anthropology</i></p> <p>204. Seminar in Linguistics (3)</p> <p>222. Historical Linguistics (3)</p> <p><i>English</i></p> <p>220. Indo-European (3)</p> <p>223. Old English (3)</p> <p>224. Middle English (3)</p> <p>295. Seminar in Linguistics (3)</p> <p>299. Thesis (3)</p> <p><i>French</i></p> <p>201. History of the French Language (3)</p> <p><i>German</i></p> <p>201. History of the German Language (3)</p> <p>202. Middle High German Literature (3)</p> | <p>265. Seminar in Germanic Linguistics (3)</p> <p><i>Philosophy</i></p> <p>231. Semantics and Logical Theory (3)</p> <p><i>Russian</i></p> <p>201. History of the Russian Language (3)</p> <p>202A-202B. Old Church Slavonic (3-3)</p> <p>203. Slavic Linguistics (3)</p> <p><i>Spanish</i></p> <p>201. History of the Spanish Language (3)</p> <p>270. Applied Spanish Linguistics for Teachers (3)</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

MASS COMMUNICATIONS

GENERAL INFORMATION

The Master of Science degree in Mass Communications is an interdisciplinary degree offered by designated faculty members of the Departments of Journalism, Psychology, Sociology, Speech Communication, and Telecommunications and Film. It is administered by the Mass Communications Committee.

The program is designed to offer systematic training for students: (1) who plan to continue their study in doctoral or other advanced programs in mass communications or in disciplines emphasizing areas of mass communications; (2) who plan a career in secondary or junior college teaching; or (3) who seek a broad background for careers in the mass media, business, or government service.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division. In addition, the student must present a bachelor's degree in journalism, radio-television, advertising, communications, sociology, or psychology. A student whose preparation is deemed insufficient by his graduate adviser or by the Mass Communications Committee will be required to complete specified courses in addition to the minimum of 30 units required for the degree.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for the Master of Science degree as described in Part Three of this bulletin, the student must complete a minimum of 30 units from courses listed below as acceptable on master's degree programs, of which at least 18 units must be in 200-numbered courses, distributed among three departments cooperating in the degree program as follows:

	200-numbered Courses	Upper Division Courses or 200-numbered Courses
Department A	12 units	6 units
Department B	3 units	3 units
Department C	3 units	3 units
	18 units	12 units

Candidates may elect to follow Plan A, which requires a thesis, or Plan B, which requires a comprehensive examination agreed on by the Mass Communications Committee in lieu of a thesis.

All programs will be approved by the Mass Communications Committee.

MASS COMMUNICATIONS COMMITTEE

G. W. Sorensen, Chairman
H. L. Anderson
R. L. Benjamin
M. M. E. El-Assal

F. W. Hornbeck
J. P. Sheposh
D. G. Wylie

FACULTY

Coordinator of Graduate Programs in Mass Communications:
G. W. Sorensen

Department of Journalism

Professors: J. L. Julian, Ph.D.; A. C. Wimer, M.A.
Associate Professors: J. K. Buckalew, Ph.D.; F. S. Holowach, M.A.; E. M. Oden-dahl, Ph.D.; G. W. Sorensen, Ph.D.
Assistant Professor: Jack Haberstroh, Ph.D.
Faculty members in other departments participating in the degree program are listed in the appropriate sections of this bulletin.

**COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS
IN MASS COMMUNICATIONS**

UPPER DIVISION COURSES

Journalism

- 102. Law of Mass Communication (3)
- 117. History of Mass Communications (3)
- 118. The Foreign Press (3)
- 121. Current Problems in Mass Communications (3)
- 122. Public Opinion Measurement (3)
- 144. Reporting of Public Affairs (3)
- 153. Newspaper Advertising (3)
- 155. Advanced Editing Techniques (3)
- 162. Mass Communication and Society (3)
- 177. Research Methods in Mass Communications (3)
- 183. Problems in Public Relations (3)
- 197. Investigation and Report (3)

Speech Communication

- 130. Semantics (3)
- 135. Theories of Human Communication (3)
- 193. Mass Persuasion (3)
- 198. Selected Topics in Speech Communication (3)

Telecommunications and Film

- 101. Broadcast Management (3)
- 103. Broadcast Advertising (3)
- 104. Broadcast Commercial Practices (3)
- 105. Regulation of Broadcasting (3)
- 108. International Broadcasting (3)

- 110. Writing and Producing for Broadcasting and Film (3)
- 130. Radio Programming (3)
- 163. The International Cinema (3)
- 170. Educational Broadcasting (3)
- 181. Broadcast Management (3)
- 183. Advanced Programming and Development for Television (3)

Sociology

- 124. Social Stratification (3)
- 137. Political Sociology (3)
- 140. Social-Psychology: Sociological Approaches (3)
- 145. Sociology of Mass Communications (3)

Psychology

- 100. Selected Topics in Psychology (1-3)
- 112. Experimental Psychology: Social (4)
- 120. Consumer Psychology (3)
- 121. Personnel and Industrial Psychology (3)
- 122. Public Opinion Measurement (3)
- 123. Organizational Psychology (3)
- 145. Social Psychology (3)
- 146. Advanced Topics in Social Psychology (3)
- 147. Psychology of Contemporary Social Problems (3)

APPLICABLE GRADUATE COURSES

Journalism

- 200. **Scope and Method of Mass Communications (3)**
Intensive preparation in methodology applicable to the various fields related to mass media study.
- 202. **Seminar: Mass Media and the Law (3)**
Prerequisite: Journalism 102 or Telecommunications and Film 105.
Case studies of legal restrictions and guarantees affecting radio, television, motion pictures, advertising, and printed media.
- 217. **Seminar: History of Journalism (3)**
Prerequisite: Journalism 117.
Directed research on topics of history of American journalism.
- 218. **Seminar in International Journalism (3)**
Prerequisite: Journalism 118.
In-depth exploration of the foreign press and cross-cultural communication; the place of the press in national development and international stability; national images and world opinion; censorship, propaganda and other barriers to international understanding.
- 221. **Seminar: Media Problems (3)**
Prerequisite: Six units in courses applicable to the Master of Science degree in Mass Communications.
Reading, investigation, and research concerning current topics in problems of mass media.

222. Mass Communications and Public Opinion (3)

Prerequisite: Journalism 122 or 177.
Analysis of media and their opinion-shaping role; methods and effects of pressure groups; propaganda analysis; creation and perpetuation of images and stereotypes.

240. Major Projects in Mass Communications (1-6)

Prerequisite: Journalism 121 or Telecommunications and Film 183.
Design and execution of an in-depth project in one of these areas: advertising campaign, series of detailed expository articles or news stories, or model public relations campaign. Maximum credit six units.

262. Seminar: Mass Communications and Society (3)

Prerequisite: Journalism 162.
Rights, responsibilities, and characteristics of mass media and mass communications practitioners; characteristics and responsibilities of audiences and society.

283. Seminar in Public Relations (3)

Prerequisite: Journalism 180.
Analysis and critique of contemporary public relations programs and theory. Development of a comprehensive public relations project involving original research.

298. Special Study (1-3)

Individual study. Maximum credit six units.
Prerequisite: Consent of staff; to be arranged with the department chairman and instructor.

299. Thesis (3)

Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.
Refer to graduate course descriptions in the sections of this bulletin under the Departments of Psychology, Sociology, Speech Communication, and Telecommunications and Film, for courses listed below.

Psychology

- 200. Seminar (3)
- 219. Seminar in Personnel Psychology (3)
- 220. Seminar in Organizational Psychology (3)
- 221. Seminar in Problems in Social Psychology (3)
- 226. Seminar in Political Psychology (3)
- 298. Special Study (1-3)
- 299. Thesis (3)

Sociology

- 210. Seminar in Social Disorganization (3)
- 220. Seminar in Social Organization (3)
- 240. Seminar in Social Psychology: Sociological Approaches (3)
- 260. Seminar in Research Methods (3)
- 290. Bibliography (1)
- 297. Research (3)
- 298. Special Study (1-3)
- 299. Thesis (3)

Speech Communication

- 235. Seminar in Communication Theory (3)

Telecommunications and Film

- 200. Research and Bibliography (3)
- 201. Seminar in Broadcast Management (3)
- 202. Seminar in Broadcast Advertising Problems (3)
- 203. Seminar in History of Broadcasting (3)
- 205. Mass Communications Research (3)
- 210. Seminar in Writing for Broadcast and Film (3)
- 212. Criticism of Broadcasting and Cinema (3)
- 270. Seminar in Educational Broadcasting (3)
- 272. Seminar in Mass Communications Theory (3)
- 273. Mass Communications Message Design (3)
- 284. Seminar in Programming and Production (3)
- 298. Special Study (1-3)
- 299. Thesis (3)

MATHEMATICS

GENERAL INFORMATION

The Department of Mathematics, in the College of Sciences, offers graduate study leading to the Master of Arts degree in Mathematics, to the Master of Arts degree for teaching service with a concentration in Mathematics, to the Master of Science degree in Mathematics, and to the Master of Science degree in Statistics.

The Master of Arts degree in Mathematics is considered to be the basic academic degree in Mathematics. A candidate for a Master of Science degree is expected to concentrate his efforts in a technical area of mathematics such as applied mathematics, computer science, or to statistics for the Master of Science degree in Statistics. Within these limitations either degree can be considered as a stepping-stone to a more advanced degree, if the student so desires.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE IN MATHEMATICS

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program consisting of at least 24 units in mathematics from courses listed below as acceptable on master's degree programs. At least 15 units must be in 200-numbered courses in mathematics, exclusive of Mathematics 202, 203, 204A, 204B, and 299.

To satisfy the foreign language requirement either the student may present evidence that he has completed French 3, German 3, Russian 3, or Spanish 3 or their equivalent with a grade of C or better, or the student may demonstrate a reading knowledge of French, German, Russian, or Spanish.

The student is required to pass the departmental comprehensive examinations in mathematics. With the approval of the department, a student may select Plan A. In other cases, Plan B will be followed.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE FOR TEACHING SERVICE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes a concentration consisting of at least 21 units in mathematics selected from courses listed below as acceptable on master's degree programs in mathematics. The student's program must include at least 15 units in 200-numbered courses of which at least 12 units must be in 200-numbered courses in mathematics. The student is required to pass the departmental comprehensive examinations in mathematics. With the approval of the department, the student may select Plan A. In other cases, Plan B will be followed.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE IN MATHEMATICS

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes at least 24 units in mathematics selected from courses listed below as acceptable on a master's degree program to include at least 15 units of 200-numbered mathematics courses exclusive of Mathematics 202, 203, 204A, 204B, and 299. The student is required to pass the departmental comprehensive examinations in mathematics. With the approval of the department, a student may select Plan A. In other cases, Plan B will be followed.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE IN STATISTICS

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must meet the following departmental requirements:

- (a) Complete 18 units of 200-numbered mathematics courses including:
 - (1) Mathematics 240A and 240B.
 - (2) Six units selected from Mathematics 241, 242, 243, 244, 245, 246, and 247;
 - (3) Six units of other 200-numbered mathematics courses, except that Mathematics 202, 204A, 204B, and 299 may not be used to fulfill these units required.
- (b) Complete 6 additional units of graduate level or approved upper division mathematics courses, not including Mathematics 299.
- (c) Complete 6 units of approved electives.
- (d) Pass the departmental comprehensive examinations in mathematical statistics. With the approval of the department, a student may select Plan A. In other cases, Plan B will be followed.

ASSISTANTSHIPS

Graduate teaching assistantships in mathematics are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of Mathematics: C. V. Holmes, Ph.D.

Graduate Advisers: Master of Arts in Mathematics, E. J. Howard; Master of Arts (Teaching), G. A. Becker; Master of Science in Mathematics, D. Saltz; Master of Science in Statistics, D. W. Macky

Credential Adviser: J. E. Eagle

Professors: G. A. Becker, Ph.D.; R. D. Branstetter, Ph.D.; C. B. Burton, Ph.D.; E. I. Deaton, Ph.D.; S. I. Drobnies, Ph.D.; J. E. Eagle, Ed.D.; L. D. Fountain, Ph.D.; Betty Garrison, Ph.D.; H. A. Gindler, Ph.D.; V. C. Harris, Ph.D.; A. R. Harvey, Ph.D.; C. V. Holmes, Ph.D.; M. M. Lemme, Ph.D.; J. M. Moser, Ph.D.; L. G. Riggs, Ph.D.; Daniel Saltz, Ph.D.; P. W. Shaw, Ph.D.; N. B. Smith, Ph.D.; R. L. Van de Wetering, Ph.D.; L. J. Warren, Ph.D.; Margaret F. Willerding, Ph.D.

Associate Professors: H. G. Bray, Ph.D.; S. J. Bryant, Ph.D.; R. W. Davis, Ph.D.; H-T. Ho, Ph.D.; E. J. Howard, Ph.D.; G. C. Lopez, Ph.D.; D. W. Macky, Ph.D.; Leon Nower, Ph.D.; Albert Romano, Ph.D.; J. B. Smith, Ph.D.

Assistant Professors: D. G. Beverage, Ph.D.; D. L. Burdick, Ph.D.; C. F. Eckberg, Ph.D.; J. D. Elwin, Ph.D.; W. R. Hintzman, Ph.D.; R. G. Khazanie, Ph.D.; R. P. Kopp, Ph.D.; Bernard Marcus, Ph.D.; J. E. Ross, Ph.D.; D. R. Short, Ph.D.; A. L. Villone, Ph.D.; D. G. Whitman, Ph.D.

**COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS
IN MATHEMATICS AND STATISTICS**

UPPER DIVISION COURSES

- | | |
|---------------------------------------------------------|-----------------------------------------------------------------------------|
| 105. Introduction to the Foundations of Geometry (3) | 150A-150B. Modern Algebra (3-3) |
| 106. Projective Geometry (3) | 152. Number Theory (3) |
| 107. Non-Euclidean Geometry (3) | 155. Mathematical Logic (3) |
| 108. Differential Geometry (3) | 156. Logical Foundations of Mathematics (3) |
| 119. Differential Equations (3) | 157. Theory of Recursive Functions (3) |
| 121A-121B. Advanced Calculus (3-3) | 158. Automata Theory (3) |
| 124. Vector Analysis (3) | 160. Introduction to Topology (3) |
| 134. Probability (3) | 170. Partial Differential Equations (3) |
| 135A-135B. Numerical Analysis and Computation (3-3) | 175. Functions of a Complex Variable (3) |
| 136. Data Structures (3) | * 181. Selected Topics of Secondary Mathematics (3) |
| 137. Combinatorial Principles for Digital Computers (3) | * 187A-187B. Probability and Statistics for Secondary School Teachers (3-3) |
| 139. Programming Languages (3) | 196. Advanced Topics in Mathematics (1-3) |
| 140A-140B. Mathematical Statistics (3-3) | |
| 141. Statistics, Theory and Applications (3) | |
| 143. Stochastic Processes (3) | |
| 149. Linear Algebra (3) | |

* For National Science Foundation students only except with consent of instructor.

GRADUATE COURSES

200. Seminar (1-3)
Prerequisite: Consent of instructor.
An intensive study in advanced mathematics, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.
202. Geometrical Systems (3)
Prerequisites: Mathematics 150A and an upper division course in geometry.
Ordered and affine geometries, decompositions, dilations. Projectivities and projective space. Absolute geometry, isometrics, groups generated by inversions.
203. Topics in Algebra (3)
Prerequisites: Mathematics 121A and 150A.
Unique factorization domains, rings and ideals, groups, algebraic field extensions. A course designed for secondary school teachers.
- 204A-204B. Topics in Analysis (3-3)
Prerequisites: Mathematics 121A and 150A. 204A is prerequisite to 204B.
Topics in analysis, including the real number system, convergence, continuity, differentiation, the Riemann-Stieltjes integral, complex analysis, designed to give the secondary teacher a broad understanding of the fundamental concepts.
205. Advanced Mathematical Logic (3)
Prerequisite: Mathematics 150A or 155.
First-order theories, completeness theorems, arithmetization, Gödel's incompleteness theorem.
212. Advanced Ordinary Differential Equations (3)
Prerequisites: Mathematics 119 and 121A.
Existence and uniqueness theorems, Wronskians, adjoint systems, Sturm-Liouville boundary value problems, equations of Fuchsian type.
214. Advanced Partial Differential Equations (3)
Prerequisite: Mathematics 170.
Theory and application of the solution of boundary value problems in the partial differential equations of engineering and physics by various methods; orthogonal functions, the Laplace transformation, other transformation methods, Green's functions.

220A-220B. Topology (3-3)

Prerequisite: Mathematics 160. Mathematics 220A is prerequisite to 220B.
Metric spaces, regular spaces, Hausdorff spaces, general topological spaces, arcs and curves, and the Jordan Curve Theorem.

222A-222B. Functional Analysis (3-3)

Prerequisites: Mathematics 149 and 160. Mathematics 222A is prerequisite to 222B.
Banach spaces, Hilbert spaces, spectral theory and Banach algebras.

224A-224B. Functions of a Complex Variable (3-3)

Prerequisites: Mathematics 121B and 175. Mathematics 224A is prerequisite to Mathematics 224B.
Analytic continuation, elliptic functions, conformal mapping, Riemann surfaces.

226A-226B. Functions of a Real Variable (3-3)

Prerequisite: Mathematics 121B. Mathematics 226A is prerequisite to Mathematics 226B.
Point sets, functions and limits, continuity, differentiations, Riemann and Lebesgue integration.

227. Fourier Analysis (3)

Prerequisites: Mathematics 121A, 140, and 150.
Fourier series on the real line and on groups, spectral theorems. Tauberian theorems.

228. Generalized Functions (3)

Prerequisites: Mathematics 121A, 149, and 150A.
Schwartz Distribution Theory, and constructive theory with application to Fourier analysis and differential equations.

230. Rings and Ideals (3)

Prerequisite: Mathematics 150B.
A development of the theory of rings.

231. Theory of Groups (3)

Prerequisite: Mathematics 150B.
A development of the theory of groups.

232. Theory of Fields (3)

Prerequisite: Mathematics 150B.
A study of both finite and infinite fields, and field extensions.

233. Linear Algebra and Matrix Theory (3)

Prerequisite: Mathematics 149.
A study of matrices, determinants, and vector spaces.

240A-240B. Advanced Mathematical Statistics (3-3)

Prerequisites: Mathematics 140B and 121A. Mathematics 240A is prerequisite to Mathematics 240B.
Theories of common distribution functions, derivation of sampling distributions with emphasis on normal populations, estimation of maximum likelihood, ratio tests of parametric hypotheses, general linear hypothesis theory.

241. Advanced Probability (3)

Prerequisites: Mathematics 121A and 134.
Probability spaces, integration of random variables, convergence in probability, product spaces and product measures; conditional measures and independent measures.

242. Non-parametric Statistics (3)

Prerequisite: Mathematics 140B.
Tolerance regions, randomness problems, most powerful rank tests, the invariance method, consistency and efficiency of tests.

243. Advanced Hypothesis Testing (3)

Prerequisite: Mathematics 140B.

Sequential probability ratio tests, confidence intervals, minimax and invariance principles.

244. Multivariate Analysis (3)

Prerequisites: Mathematics 140B and 149.

Multivariate normal distributions, multivariate analysis of variance, factor analysis, canonical correlation.

245. Linear Statistical Hypothesis Testing (3)

Prerequisites: Mathematics 140A and 149.

The Multivariate Normal distribution; distribution of quadratic forms; linear and curvilinear models; general linear hypotheses of full rank, regression models.

246. Statistical Decision Theory and Applications (3)

Prerequisites: Mathematics 121A and 140B.

Sequential and nonsequential decision methods, complete classes of decision functions, admissible decision functions, adaptive control systems, stochastic stability and control.

247. Design of Experiments (3)

Prerequisites: Mathematics 140A and 149.

Experimental design models, a basic approach as well as a matrix algebra approach.

260A-260B. Theory of Computability (3-3)

Prerequisites: Mathematics 137 and 158.

Turing machines and their variants. Gödel numbering and unsolvability results. Models of computation.

265A-265B. Formal Languages and Syntactic Analysis (3-3)

Prerequisites: Mathematics 136 and 139.

Definition of formal grammars; Arithmetic expressions and precedence grammars, context-free and finite-state grammars. Algorithms for syntactic analysis. Relationship between formal languages and automata.

268A-268B. Applications of Digital Computation (3-3)

Selected topics for information retrieval, artificial intelligence, theorem proving by computer, simulation, computer graphics, learning theory, computer-assisted instruction.

270A-270B. Advanced Numerical Analysis (3-3)

Prerequisites: Mathematics 121A and 135B.

Matrix norms and bound, localization theorems and eigen problem for matrices. Iterative methods for the solution of linear equations and application to partial differential equations. Extra-polation to the limit. Ordinary boundary value problem.

297. Research (1-3)

Prerequisite: Six units of graduate level mathematics.

Research in one of the fields of mathematics. Maximum credit six units applicable on a master's degree.

298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

Individual study. Six units maximum credit.

299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

MICROBIOLOGY

GENERAL INFORMATION

The Department of Microbiology, in the College of Sciences, offers graduate study leading to the Master of Science degree in Microbiology. Facilities are available for research in all areas of microbiology including ecology, electron microscopy, genetics, immunology, marine microbiology, pathogenic bacteria and fungi, physiology, and virology.

After completing his course of study, the student may continue further academic study or obtain employment as a bioanalyst, research technician, community college teacher, or supervisory medical technologist.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. To qualify for admission to classified graduate standing in the Department of Microbiology the student must also:

- have completed the minimum requirements for a baccalaureate degree in microbiology at San Diego State,
- have an undergraduate grade point average of 2.75, or demonstrate the ability to do superior graduate work, and
- have been accepted by an adviser in microbiology and have planned an acceptable official program of study.

ADVANCEMENT TO CANDIDACY

In addition to satisfying the general requirements for advancement to candidacy as stated in Part Three of this bulletin, the student must also pass a comprehensive oral qualifying examination in the Department of Microbiology before the end of the first semester as a classified graduate student.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least thirty units of upper division and graduate courses selected with the approval of the graduate adviser from the biological sciences as listed below or from closely related fields. Not less than 18 units must be selected from courses offered in the Department of Microbiology to include not less than 15 units of 200-numbered courses. Among the 200-numbered courses selected, the student's program must include courses in Microbiology 290, Bibliography; 291, Research Techniques; 299, Thesis; and at least four units of seminar. A maximum of six units of the required 30 units may be selected from acceptable courses offered in other related areas including the School of Education. A final oral examination on the field of the thesis and its implication in the broad fields of microbiology is required.

ASSISTANTSHIPS

Graduate teaching assistantships in microbiology are available to a limited number of classified graduate students. Application blanks and additional information may be secured from the Chairman of the Department of Microbiology.

FACULTY

Chairman, Department of Microbiology: W. L. Baxter, Ph.D.

Graduate Adviser: Beatrice L. Kelly

Professors: W. L. Baxter, Ph.D.; H. B. Moore, Ph.D.; H. A. Walch, Ph.D.

Associate Professors: Beatrice L. Kelly, Ph.D.; L. N. Phelps, Ph.D.

Assistant Professors: E. A. Anderes, Ph.D.; Alice C. Jokela, Ph.D.; J. F. Steenberg, Ph.D.

**COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS
IN MICROBIOLOGY**

UPPER DIVISION COURSES

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><i>Biology</i></p> <p>101. Cellular Physiology (4)
103. General Cytology (4)
110. Ecology (4)
111. Aquatic Biology (3)
150. Radiation Biology (3)
150L. Radiation Biology Laboratory (1)
155. Genetics (4)
181. Advanced Cellular Physiology (3)</p> <p><i>Botany</i></p> <p>101. Phycology (4)
102. Mycology (4)</p> <p><i>Microbiology</i></p> <p>102. Pathogenic Bacteriology (4)
104. Medical Mycology (4)</p> | <p>107. General Virology (2)
108. General Virology Laboratory (2)
109. Hematology (4)
111A-111B. Epidemiology (2-2)
114. Bacterial and Viral Genetics (4)
115. Advanced General Microbiology (4)
116. Marine Microbiology (4)
120. Animal Viruses (4)
130. Experimental Immunology (4)
140. History of Microbiology (2)
180. Electron Microscopy (4)</p> <p><i>Zoology</i></p> <p>108. Histology (4)
121. General Entomology (4)
122. Advanced Entomology (4)
126. Medical Entomology (3)
128. Parasitology (4)</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

GRADUATE COURSES

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><i>Microbiology</i></p> <p>200. Seminar (2 or 3)
205. Seminar in Microbial Physiology (2)
210. Seminar in Pathogenic Bacteriology (2)
215. Seminar in Bacterial and Viral Genetics (2)
220. Seminar in Industrial and Agricultural Microbiology (3)
230. Seminar in Medical Mycology (2)
240. Seminar in General Microbiology (2)
245. Seminar in Aquatic Microbiology (2)</p> | <p>250. Seminar in Virology (2)
260. Seminar in Immunology and Serology (2)
270. Biology of Animal Pathogenic Fungi (4)
271. Bacterial Viruses (Bacteriophages) (4)
272. Advanced Pathogenic Bacteriology (4)
290. Bibliography (1)
291. Research Techniques (3)
297. Research (1-3)
298. Special Study (1-3)
299. Thesis or Project (3)</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Refer to the Biological Sciences section of this Bulletin for the descriptions of the 200-numbered courses in microbiology applicable to the Master of Science degree program in Microbiology. (See same section for titles and descriptions of 200-numbered courses in related fields which may be acceptable for the Master of Science degree in Microbiology.)

MUSIC

GENERAL INFORMATION

The Department of Music, in the College of Professional Studies, offers graduate study leading to the Master of Arts degree in Music. The Department is a member of the National Association of Schools of Music.

With the approval of the Department, students may select courses emphasizing one of the following areas:

- Composition
- Musicology
- Music History and Literature
- Music Education
- Performance
- Theory

ADMISSION TO THE GRADUATE DIVISION

In addition to the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this Bulletin, a student must satisfy the following requirements before he will be recommended for classified graduate standing:

- (a) Have completed a bachelor's degree with a major in music including full preparation in theory, literature, and performance.
- (b) Satisfactorily complete placement examinations in theory, music history and literature, and performance. Details may be obtained from the Department of Music.
- (c) Be accepted in the emphasis of his choice by the departmental graduate committee.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes a major consisting of at least 24 units from courses listed below as acceptable on master's degree programs in music, of which at least 16 must be in 200-numbered courses including Music 290.

Plan A is required of those students whose emphasis is in musicology, music history and literature, theory, and music education, in which case the student is required to enroll in Music 299, Thesis, and to pass a final oral examination on the thesis. Students electing the composition emphasis will be required to enroll in Music 299 and to submit an original composition in the form of a project.

Students whose emphasis is in performance may elect Plan B, and in lieu of the comprehensive examination, choose to give a full recital, or a lecture-recital with a supporting document in thesis form, which is presented to the Department of Music. Students should check the Department's guidelines, rules, and procedures.

SCHOLARSHIPS

Information on music scholarships may be obtained by writing to the Chairman, Music Scholarship Committee, Music Department, San Diego State.

FACULTY

Chairman, Department of Music: J. D. Smith, M.M.
 Graduate Adviser: Master of Arts, J. D. Smith
 Credential Advisers: Edith Savage; J. D. Smith
 Professors: P. V. Anderson, M.M.; M. R. Biggs, Ph.D.; J.D. Blyth, Ed.D.; G. K. Genzlinger, M.M.; M. E. Hogg, Ph.D.; L. C. Hurd, M.M.; A. A. Lambert, Ph.D.; Norman Rost, M.M.; Edith J. Savage, Ed.D.; J. D. Smith, M.M.; M. S. Snider, M.A.; David Ward-Steinman, D.M.A.
 Associate Professors: Conrad Bruderer, D.M.; T. R. Brunson, D.M.A.; R. G. Estes, Ed.D.; R. B. Forman, Ed.D.; J. J. S. Mracek, Ph.D.; J. M. Sheldon, Ed.D.
 Assistant Professors: F. W. Almond, Ph.D.; Howard Hill, M.A.; J. D. Logan, M.M.; D. M. Loomis, M.M.; Danlee Mitchell, M.S.; Jean Moe, M.A.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN MUSIC

UPPER DIVISION COURSES

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 105. Modern Harmonic Practice (3)
106. Sixteenth Century Counterpoint (3)
107. Composition Laboratory (1)
109A-109B. Instrumentation and Arranging (2-2)
123S. Workshop in Instrumental Techniques and Chamber Music for Strings, Woodwind, and Brass Instruments (2)
141A-141B. Applied Music Pedagogy (3-3) | 142A-142B. Applied Music Pedagogy Laboratory (2-2)
146A. Choral Conducting (1)
146B. Instrumental Conducting (1)
152A-152B. History of Music (3-3)
153. Opera Technique (2)
154A. Chamber Music Literature-Strings (2)
154B. Small Wind and Percussion Ensemble Literature (2)
154C. Symphonic Literature (2)
154D. Keyboard Literature (2)
154E. Song Literature (2) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

GRADUATE COURSES

200. Seminar in Music Education (3)
 Prerequisite: Consent of instructor.
 Seminars in music education are offered to provide an opportunity for concentrated study in the several areas listed.
 A. Development and Teaching of Strings
 B. Choral and Vocal Techniques
 C. General Music
201. Foundations of Music Education (3)
 History and philosophy of music education in relation to current trends in the teaching of music.
202. Administration and Supervision of Music Education (3)
 Curriculum, scheduling, finance, human relations, organizational aspects, and the role of the supervisor-consultant.
204. Comparative Music Education (3)
 Various international philosophical and technical approaches to teaching music to include the Orff, Kodaly, Suzuki and other systems.
207. Composition (2 to 3)
 Prerequisite: Music 107.
 Advanced composition for various media, development of original idiom, intensive study of modern music. Public performance of an extended original work as a project.
208. History and Development of Music Theory (3)
 Prerequisites: Music 108 and 152B.
 A survey of important theoretical approaches to music, from pre-Socratic writers

209. Advanced Orchestration (2)

Prerequisite: Music 109B.
 Intensive work in the practical scoring for ensemble, full orchestra, and symphonic band. Score analysis. Selected works of the class members will be performed.

210. Electronic Music (3)

Prerequisite: Undergraduate concentration in composition.
 Theory, techniques, and composition of various kinds of electronic music.

211. Analytical Studies of Music (3)

Prerequisite: Music 108.
 Melodic, formal, contrapuntal, and harmonic analysis of music.

212. Advanced Contrapuntal Techniques (3)

Prerequisites: Music 59B and 106.
 Traditional and contemporary contrapuntal styles. The development of contrapuntal skills through writing.

213. Seminar: Music Theory (3)

Prerequisites: Music 59B and 106.
 Principles of traditional harmony and ear-training.

246A. Advanced Choral Conducting (2)

Prerequisite: Music 146B.
 Course designed to develop skills at professional level; study of different styles of choral literature and their relationship to conductor's art; score analysis and experience in conducting.

246B. Advanced Instrumental Conducting (2)

Prerequisite: Music 146B.
 Course designed to develop skills at professional level; study of conducting style as related to band and orchestra literature score analysis and experience in conducting.

250. Applied Music—Advanced Individual Study (2)

For the graduate student who qualifies for advanced study through an audition before the Music Department faculty. See explanation in the general catalog, under Music, for conditions under which credit may be given for music study under private instructors. May be repeated to a maximum of four units.

A. Piano	G. Saxophone	N. Tuba	T. Harp
B. Organ	H. Bassoon	O. Percussion	U. Classical Guitar
C. Voice	J. French Horn	P. Violin	V. Composition
D. Flute	K. Trumpet	Q. Viola	X. Classical Accordion
E. Oboe	L. Trombone	R. Cello	Y. Harpsichord
F. Clarinet	M. Baritone Horn	S. Contrabass	

252. Seminar in Music History (3)

Prerequisites: Music 152B and consent of instructor.
 Seminars in music history are offered for intensive study in each of the historical eras as listed below.

- A. Music of the Middle Ages and Renaissance
- B. Music of the Baroque Era
- C. Music of the 18th and 19th Centuries
- D. Twentieth Century Music
- E. American Music

253. Musicology (3)

Prerequisites: Music 152A and 152B.
 Problems and research in musicology. Projects in bibliography, source materials, music history, criticism, aesthetics, and related fields. Writing and presentation of a scholarly paper. (Formerly numbered 203.)

255. Seminar: A Major Composer (3)

Prerequisite: Music 152B. Completion of a seminar in Music 252 is recommended. The life, milieu and works of a major composer, such as Bach, Mozart, or Schubert will be studied. Maximum credit six units applicable on a master's degree.

260. Seminar in the Notation of Polyphonic Music (3)

Prerequisite: Music 152B. Completion of Music 252A is recommended. Problems related to the notation of Medieval, Renaissance and Baroque Music. Examples will be transcribed into modern notation.

- A. Notation of Soloistic Music: Scores and Tablatures.
- B. Notation of Ensemble Music: White Mensural Notation.
- C. Notation of Ensemble Music: Black Notation to the End of Franconian Notation.
- D. Notation of Ensemble Music: French, Italian, Mixed and Mannered Notation.

270. Seminar: Interpretation of Early Music (3)

Prerequisites: Completion of Music 252A and 252B is recommended. Performance practice in Medieval, Renaissance, and Baroque music; projects in music editing; reports; performance on historical instruments. Participation in the Collegium Musicum required.

290. Research Procedures in Music (3)

Reference materials, bibliography, investigation of current research in music, processes of thesis topic selection, and techniques of scholarly writing.

298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

Individual study. Six units maximum credit.

299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

PHILOSOPHY

GENERAL INFORMATION

The Department of Philosophy, in the College of Arts and Letters, offers a program of graduate studies leading to the Master of Arts degree in Philosophy. This curriculum is designed to provide advanced study in the field of philosophy as a basis for further graduate work and to meet the needs of students who plan to teach in colleges or hold other positions of leadership.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. In addition, they must have completed an undergraduate major with a minimum of 24 upper division units in philosophy including courses in Ancient, Medieval, and Modern History of Philosophy. A grade point average of 3.0 (B) is required in all upper division work in philosophy.

ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, including the foreign language requirement, as stated in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program to include the following:

- (1) A minimum of 24 units in philosophy from courses listed below as acceptable on master's degree programs. At least 15 of these units must be in 200-numbered courses, including Philosophy 299, Thesis. Philosophy 298 may not be used to fulfill this 15 unit requirement. The remaining electives (6 units) must be selected with the approval of the adviser from courses in philosophy, in related disciplines, or in courses required for the community college credential.
- (2) Demonstrate a reading knowledge of French or German.

FACULTY

Chairman, Department of Philosophy: Patricia A. Crawford, Ph.D.

Graduate Adviser: Peter O'Reilly

Professors: Patricia A. Crawford, Ph.D.; R. J. Howard, Ph.D.; Jack McClurg, Ph.D.; S. M. Nelson, Ph.D.; Peter O'Reilly, Ph.D.; Harry Ruja, Ph.D.; A. E. Shields, Ph.D.; W. S. Snyder, Ph.D.; E. W. Warren, Ph.D.

Associate Professors: W. H. Koppelman, Ph.D.; Rosemary Z. Lauer, Ph.D.; S. N. Weissman, Ph.D.

Assistant Professors: M. J. Carella, Ph.D.; A. L. Feenberg, M.A.; E. A. Troxell, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN PHILOSOPHY

UPPER DIVISION COURSES

- | | |
|--------------------------------------------------|-------------------------------------|
| 102. History of Philosophy II (3) | 127. Values and Social Sciences (3) |
| 104. History of Philosophy IV (3) | 128. Theory of Ethics (3) |
| 105A-105B. Twentieth Century
Philosophy (3-3) | 131. Philosophy of Language (3) |
| 108. Recent Existentialism (3) | 132. Philosophy of History (3) |
| 109. Ordinary Language Analysis (3) | 133. Philosophy of Education (3) |
| 110. Philosophy of Law (3) | 135. Philosophy of Religion (3) |
| 121. Deductive Logic (3) | 137. Philosophy of Science (3) |
| 122. Inductive Logic (3) | 141. History of Aesthetics (3) |
| 123. Theory of Knowledge (3) | 142. Philosophy of Art (3) |
| 125. Metaphysics (3) | 164. American Philosophy (3) |
| | 175. A Major Philosopher (3) |
| | 195. Selected Topics (3) |

GRADUATE COURSES

- 201. Seminar in Ancient Philosophy (3)**
Prerequisite: 12 upper division units in philosophy including Philosophy 101.
Directed research in a major author (e.g., Plato or Aristotle), or a school (e.g., the Pythagoreans or the Stoics), or a problem (e.g., causation or the state). Maximum credit six units applicable on a master's degree.
- 202. Seminar in Medieval Philosophy (3)**
Prerequisite: 12 upper division units in philosophy including Philosophy 102.
Directed research in a major author (e.g., Augustine or Aquinas), or a school (e.g., neo-Aristotelianism), or a problem (e.g., political philosophy or reason and authority). Maximum credit six units applicable on a master's degree.
- 203. Seminar in Modern Philosophy (3)**
Prerequisite: 12 upper division units in philosophy including Philosophy 103.
Directed research in a major author (e.g., Hume or Kant), or a school (e.g., the continental rationalists or the British empiricists), or a problem (e.g., the nature of substance). Maximum credit six units applicable on a master's degree.
- 205. Seminar in Contemporary Philosophy (3)**
Prerequisite: 12 upper division units in philosophy including Philosophy 105.
Directed research in a major author (e.g., Dewey or Wittgenstein), or a school (e.g., the pragmatists or the language analysts), or a problem (e.g., perception or personhood). Maximum credit six units applicable on a master's degree.
- 211. Seminar in Legal Philosophy (3)**
Prerequisite: 12 upper division units in philosophy.
Directed research in recurrent themes of philosophical significance in jurisprudential literature.
- 212. Seminar in Political Philosophy (3)**
Prerequisite: Twelve units of upper division work in philosophy.
Directed research in a major problem in political philosophy or the work of a major political philosopher.
- 221. Seminar in Deductive Logic (3)**
Prerequisites: 12 upper division units in philosophy including Philosophy 121.
A comparison of deductive systems in logic. Problems of definability, consistency, and completeness. The role of logic in the foundations of mathematics.
- 223. Seminar in Epistemology (3)**
Prerequisite: 12 units of upper division work in philosophy.
Basic problems concerning meaning, perception and knowledge.
- 225. Seminar in Metaphysics (3)**
Prerequisite: 12 units of upper division work in philosophy.
An inquiry into the search for significant quantities of reality.
- 228. Seminar in Ethics (3)**
Prerequisite: 12 units of upper division work in philosophy.
Contemporary ethical issues. Critical analysis of the works of some leading theorists, such as Moore, Dewey, Stevenson, and Toulmin.
- 231. Seminar in Semantics and Logical Theory (3)**
Prerequisites: 12 upper division units in philosophy including Philosophy 121 and 131.
Contemporary issues in the foundations of logic and theories of language.
- 235. Seminar in Philosophy of Religion (3)**
Prerequisite: 12 upper division units in philosophy including Philosophy 135.
A philosophical investigation of the nature of religious thought: its structure, growth, and significance.

- 236. Seminar in Philosophy of Art (3)**
Prerequisite: 12 units of upper division work in philosophy.
An analysis, criticism, and comparative study of selected philosophies of art.
- 237. Seminar in Philosophy of Science (3)**
Prerequisites: 12 upper division units in philosophy including Philosophy 122 and 137.
The methodology of the empirical sciences. The logical structure of science.
- 295. Seminar in Selected Topics (3)**
Prerequisite: 12 units of upper division work in philosophy.
Directed research in a major problem or movement in philosophy. Maximum credit six units applicable on a master's degree.
- 298. Special Study (1-3)**
Individual study. Maximum credit six units.
Prerequisites: 12 units of upper division work in philosophy and consent of staff; to be arranged with department chairman and instructor.
- 299. Thesis (3)**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

PHYSICAL EDUCATION

GENERAL INFORMATION

The Department of Physical Education, in the College of Professional Studies, offers graduate study leading to the Master of Arts degree in Physical Education.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing the student must satisfy the basic requirements for the master's degree, described in Part Three of this bulletin. The 30-unit program includes a minimum of 21 units in physical education selected from courses listed in this bulletin as acceptable on master's degree programs, of which at least 18 units must be in 200-numbered courses. Physical Education 291, Research Techniques, and either Physical Education 299, Thesis (Plan A), or Physical Education 295, Seminar (Plan B), are required. Students electing Plan B must pass a final written and oral comprehensive examination. Each candidate will be required to complete an area of specialization after consulting the graduate adviser.

ASSISTANTSHIPS

Graduate teaching assistantships in physical education are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of Physical Education: W. H. Phillips, Jr., Ed.D.
Graduate Adviser: Paul Governali
Professors: Ruth Andrus, Ph.D.; C. W. Benton, Ed.D.; J. L. Carter, Ph.D.; D. D. Coryell, M.S.; Paul Governali, Ed.D.; F. W. Kasch, Ed.D.; Evelyn Lockman, M.A.; Margaret L. Murphy, Ed.D.; A. W. Olsen, Ed.D.; L. I. Olsen, Ed.D.; W. H. Phillips, Jr., Ed.D.; W. H. Schutte, M.S.; F. L. Scott, Ph.D.; W. L. Terry, Ed.D.; Dorothy J. Tollefsen, M.A.; George Ziegenfuss, Ed.D.
Associate Professors: H. H. Broadbent, M.S.; Mary F. Cave, M.A.; Patricia Cullen, Ph.D.; Kathleen Fox, Ph.D.; Anthony Sucec, Ed.D.; R. W. Wells, M.A.
Assistant Professors: Joan F. Barone, M.S.; E. P. Franz, M.A.; Abraham Friedman, Ph.D.; Claude Gilbert, M.A.; Cynthia Hollyfield, M.A.; Jean Landis, M.S.; R. J. Moore, Jr., M.S.; Carol E. Palmiotto, M.A.; Judith N. Rountree, M.S.; Joan Whitby, M.S.; Betty J. Wilhelm, M.A.; Gloria R. Williamson, M.A.; G. C. Willis, M.A.; Ernest Zampese, M.A.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN PHYSICAL EDUCATION

UPPER DIVISION COURSES

- | | |
|---------------------------------------------------------------------|----------------------------------------------|
| 153A-153B. Problems in Dance (2-2) | 164. Athletic Injuries (Sports Medicine) (2) |
| 157A-157B. Choreography in Contemporary Dance (Men and Women) (3-3) | 167. Applied Anatomy and Kinesiology (3) |
| 160. Mechanics of Body Movement (Women) (3) | 168. Physiology of Exercise (3) |
| 161. The Psychological Bases of Physical Education (3) | 169. Adapted Activities (2) |
| 162. Measurement and Evaluation in Physical Education (3) | 181. History and Philosophy of Dance (2) |

GRADUATE COURSES

200. Seminar (3)

An intensive study in advanced physical education, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

201. Curriculum in Physical Education (3)

Prerequisite: Major or minor in physical education, or equivalent.
Curricula in physical education. Special emphasis on curriculum construction and evaluation.

202. Administration of Physical Education in the Secondary Schools (3)

Prerequisite: Major or minor in physical education, or equivalent.
Topics include personnel problems, selection and maintenance of equipment and facilities, program organization and evaluation, budget, and related items.

203. History of Physical Education (3)

Historical forces guiding the development of physical education from ancient to modern times.

204. Problems in Recreation (3)

Same course as Recreation 204.
Current problems facing the recreation profession, through a review of literature, discussion of trends, and observation of school and community situations. Analysis and evaluation of actual problems. Written reports required.

205. Current Trends and Issues in Physical Education (3)

A critical appraisal of contemporary trends and issues.
Investigation and analysis of professional literature.

206. Seminar in Competitive Athletics (3)

Prerequisite: Major or minor in physical education or recreation.
Knowledge and appreciation of the skills, techniques, and teaching methods involved with the coaching of athletics; the study of possible solutions to problems associated with the program of competitive school athletics.

207. Advanced Kinesiology and Biomechanics (3)

Prerequisites: Zoology 8, 22, and Physical Education 167.
Principles of mechanics applied to the analysis of human motion. Electromyography and cinematography as aids in analysis. Kinetic analysis of movement.

208. Advanced Physiology of Exercise (3)

Prerequisites: Zoology 8 and 22, Physical Education 167 and 168.
Advanced aspects of the physiology of exercise. Effects of exercise on human beings in relation to health, longevity, morphology, and performance.

209. Advanced Adapted Activities (3)

Prerequisites: Zoology 8 and 22, Physical Education 167 and 169.
Postural divergencies, lack of physical development, physical handicaps, and special programs. Individual exercise programs. Preventive and corrective exercises. Functional examinations and the physician's report. Ethical procedures and limitations.

210. Seminar in Facilities for Physical Education (3)

Prerequisite: Major or minor in physical education or recreation.
Individual study of problems related to the planning, development and maintenance of physical education and athletics facilities.

211. Advanced Evaluation in Physical Education (3)

Prerequisite: Physical Education 162.
Methods, statistical techniques, and apparatus used in testing physical performance. Sources of error, limitations on application and interpretation. Practice in construction and use of tests.

213. **Problems in Physical Education (3)**
Prerequisite: Major or minor in physical education.
A study of selected areas of the physical education program.
214. **Seminar in Dance Programs (3)**
Prerequisite: Major or minor in dance or physical education.
Procedures and evaluation of all forms of educational dance with implications for curriculum planning. Lectures and research. Completion of written project.
215. **Philosophical Foundations for Physical Education (3)**
Major philosophies and their application in physical education.
220. **Principles of Neuromuscular Tension (3)**
Prerequisite: Physical Education 167.
Theories underlying the causes of muscular hypertension and the application of hypokinetic principles in daily living.
221. **Exercise Electrocardiography (3)**
Principles of resting and exercise electrocardiography with emphasis on ergometric methods and application to exercise physiology.
223. **Advanced Exercise Physiology Laboratory (3)**
Nine hours of laboratory.
Prerequisites: Physical Education 169.
A laboratory course designed to develop competency in respiratory metabolism pulmonary function, gas analysis, blood chemistry and ergometry. Experience in the application of exercise procedures with human subjects and analysis and interpretation of results.
227. **Fitness of Adults (3)**
One lecture and six hours of laboratory.
Prerequisite: Physical Education 169.
Evaluation, exercise prescription, and training of adults. An understanding of the underlying hypokinetic diseases of adults and the procedures used in coping with the associated health problems of an automated environment.
261. **Seminar in Motor Learning and Motor Performance (3)**
Prerequisite: Physical Education 161.
A review of research in physical education and related fields plus experimental laboratory experiences in motor learning.
291. **Research Techniques (3)**
Prerequisites: Major in Physical Education, and Physical Education 162.
Principles and methods of planning and carrying out the investigation of problems related to physical education. The development of research designs and practice in formulating and testing hypotheses as well as the interpretation of results. (Prerequisite to thesis.)
295. **Seminar in Physical Education (3)**
Prerequisites: Physical Education 291 and advancement to candidacy for the master's degree in physical education.
Selected subjects in physical education culminating in written projects. Limited to students following Plan B for the Master of Arts degree in Physical Education.
298. **Special Study (1-3)**
Prerequisite: Consent of special study adviser.
Individual study. Six units maximum credit.
299. **Thesis (3)**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

PHYSICAL SCIENCES

GENERAL INFORMATION

The Department of Physical Science, in the College of Sciences, offers graduate study leading to the Master of Arts degree for teaching service in the Physical Sciences with a concentration in astronomy, chemistry, geology, and physics. This curriculum is designed specifically for prospective teachers in the fields of the physical sciences.

ADMISSION TO THE GRADUATE DIVISION

All applicants for the degree must satisfy the general requirements for admission to the Graduate Division with classified graduate standing as described in Part Three of this bulletin. In addition, the undergraduate preparation in the physical sciences must have substantially satisfied the undergraduate requirements for the bachelor's degree in the physical sciences. (Refer to the general catalog for a description of this major.) If the student's undergraduate preparation is deficient, he will be required to take courses for the removal of the deficiency. These courses, taken by the student as an unclassified graduate, are in addition to the minimum of 30 units for the master's degree.

Attention is called to the status of an unclassified graduate as described in Part Three of this Bulletin under Admission to the College for Graduate Study. "An unclassified graduate student is not eligible to enroll in 200-numbered courses, except with permission of the instructor and concurrence of the Dean of Graduate Studies. All credit earned by an unclassified graduate student is subject to evaluation as to its acceptance for graduate credit in a master's degree curriculum."

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, which are described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE FOR TEACHING SERVICE

In addition to meeting the requirements for admission to the Graduate Division with classified graduate standing, and the basic requirements for the Master of Arts degree, as described in Part Three of this Bulletin, the student must complete a program of 30 units, of which at least 15 must be in 200-numbered courses. A minimum of 18 units must be in the physical sciences, (astronomy, chemistry, geology, physical science, or physics), with at least 6 units in each of two fields. Of the 18 units, 6 units must be 200-numbered courses. The program must be approved by the Coordinator of Science Education. With the approval of the adviser, the student may select Plan A or Plan B. If Plan B is selected, the department will require a comprehensive examination in lieu of the thesis.

FACULTY

Chairman, Department of Physical Science: N. F. Dessel, Ph.D.

Graduate Adviser: D. E. Ingmanson

Coordinator of Science Education: N. F. Dessel

Professors: N. F. Dessel, Ph.D.; C. F. Merzbacher, Ed.D.

Associate Professor: C. M. Shull, Ph.D.

Assistant Professors: L. R. Anderson, Ph.D.; D. E. Ingmanson, Ed.D.; R. P. Metzger, Ph.D.; Arthur Springer, Ph.D.; W. H. Thompson, M.S.; W. J. Wallace, M.S.

Faculty members in the Departments of Astronomy, Chemistry, Geology, and Physics are listed in the appropriate sections of this bulletin.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN THE PHYSICAL SCIENCES

With the approval of the department Graduate Committee, 100- or 200-numbered courses offered in the College of Sciences and in the School of Engineering may be used to satisfy the requirements for the degree.

GRADUATE COURSES

Physical Science 200. Seminar (2 or 3)

An intensive study in advanced physical science, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

Physical Science 298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

Physical Science 299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a thesis or project in one of the physical sciences for the master's degree.

PHYSICS

GENERAL INFORMATION

The Department of Physics, in the College of Sciences, offers graduate study leading to the Master of Arts degree in Physics and the Master of Science degree in Physics. The Master of Arts degree in Physics is designed primarily for those students who anticipate additional work leading to the doctorate degree in physics. The Master of Science degree is designed to augment the student's undergraduate training by an additional fifth year of more advanced studies and is best suited for those students who plan to terminate their graduate work at the fifth year level. Experimental facilities are available for studies in such fields as acoustics, nuclear physics, optics and spectroscopy, physical electronics, solid state physics, atomic physics, low temperature physics, and high energy physics.

Within the San Diego area there are governmental and industrial research laboratories concerned with all the fields of physics and electronic science. Scientists from these agencies help provide additional stimulation through seminars and scientific meetings in the area. Opportunities exist for summer employment in these agencies for the acquisition of industrial field experience.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin and pass the qualifying examination in physics. In addition, the undergraduate preparation in physics must have substantially satisfied the undergraduate requirements for the bachelor's degree in physics. (Refer to the general catalog for a description of these majors.) If the student's undergraduate preparation is deficient, he will be required to take courses for the removal of the deficiency. These courses, taken by the student as an unclassified graduate, are in addition to the minimum of 30 units for the master's degree.

Attention is called to the status of an unclassified graduate student as described in Part Three of this bulletin under Admission to the College for Graduate Study. "An unclassified graduate student is not eligible to enroll in 200-numbered courses, except with permission of the instructor and concurrence of the Dean of Graduate Studies. All credit earned by an unclassified graduate student is subject to evaluation as to its acceptance for graduate credit in a master's degree curriculum."

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, including the foreign language requirement, as stated in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes the following courses in physics: Physics 210A, 205, 219, 270A, 275A, 297 (3 units), and 299. The remaining nine units must be approved by the student's departmental graduate committee. Students must demonstrate a reading knowledge of scientific French, German, or Russian. The student is required to pass a final oral examination on his thesis.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes the following courses in physics: Physics 210A, 270A, 297 (3 units), 299, and three additional units chosen from Physics 205, 219, 260, and 275A. The remaining fifteen units must be approved by the student's departmental graduate committee. The student is required to pass a final oral examination on his thesis.

ASSISTANTSHIPS

Graduate teaching assistantships in physics are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of Physics: J. D. Templin, Ph.D.
 Graduate Advisers: Master of Arts and Master of Science, J. G. Teasdale
 Credential Adviser: L. E. Smith, Jr.
 Professors: O. H. Clark, Ph.D.; J. D. Garrison, Ph.D.; C. R. Moe, Ph.D.; R. H. Morris, Ph.D.; L. L. Skolil, Ph.D.; L. E. Smith, Jr., Ph.D.; Hershel Snodgrass, Ph.D.; J. G. Teasdale, Ph.D.; J. D. Templin, Ph.D.; G. H. Wolter, M.S.
 Associate Professors: D. M. Cottrell, Ph.D.; P. F. Nichols, Ph.D.; R. J. Piserchio, Ph.D.; D. E. Rehfuss, Ph.D.; F. A. Wolf, Ph.D.
 Assistant Professors: R. L. Craig, M.S.; R. A. Lilly, Ph.D.; S.B.W. Roeder, Ph.D.; Jack Sarfatt, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN PHYSICS

UPPER DIVISION COURSES

- | | |
|-------------------------------------|-----------------------------------------|
| 114. Acoustics (3) | 175. Advanced Mechanics (3) |
| 122. Senior Physics Laboratory (2) | 180. Solid State Physics (3) |
| 148. Nuclear Physics Laboratory (3) | 186. Modern Optics (3) |
| 151. Nuclear Physics (3) | 187. Modern Optics Laboratory (2) |
| 155. Analog Computers (3) | 190. Introductory Quantum Mechanics (3) |
| 156. Digital Computers (3) | 196. Advanced Physics (2 or 3) |
| 167B. Semiconductor Devices (3) | |
| 173B. Physical Electronics (3) | |

GRADUATE COURSES

200. Seminar (2 or 3)
 Prerequisite: Consent of instructor.
 An intensive study in advanced physics, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.
205. Theoretical Mechanics (3)
 Prerequisite: Physics 175.
 Mechanics utilizing vector and tensor methods. Study of the motion of rigid bodies, vibration, coupled circuits. Lagrange's and Hamilton's equations. Principle of least action.
- 210A-210B. Mathematics of Physics (3-3)
 Prerequisites: Mathematics 118B; Physics 210A is prerequisite to Physics 210B.
 Topics from matrix theory, vector and tensor analysis, orthogonal function theory, calculus of variations and probability theory with particular emphasis on applications to physical theory.
214. Advanced Acoustics (2)
 Prerequisite: Physics 114.
 The acoustic wave equation in two and three dimensions. Propagation of sound in bounded media and enclosures. Radiation and scattering. Electrical-mechanical-acoustical elements and circuits.
219. Statistical Mechanics (3)
 Prerequisites: Physics 175 and 190.
 Classical and quantum statistics, kinetic theory, low pressure phenomena, Boltzmann transport equation, irreversible processes.
220. Radiation Physics (2)
 Prerequisites: Physics 148 and 151.
 Topics in nuclear radiation phenomena, including interaction of radiation with matter; radiation detectors.

221. Radiological Physics (2)
 One lecture and three hours of laboratory.
 Prerequisites: Physics 148 and 151.
 Topics and problems in radiological physics.
222. Health Physics (2)
 One lecture and three hours of laboratory.
 Prerequisites: Physics 148 and 151.
 Topics and problems in health physics.
248. Advanced Nuclear Physics Laboratory (3)
 One lecture and six hours of laboratory.
 Prerequisite: Physics 148.
 Experimental work involving sub-critical reactor assembly, neutron generator, whole-body counter, etc.
251. Nuclear Physics (3)
 Prerequisites: Physics 151, 175, and 190.
 Theory of nuclear forces, nuclear reactions, interaction of radiation with matter, radioactivity, nuclear structure and high energy physics.
260. Advanced Electronics (3)
 Prerequisite: Physics 173B.
 Advanced topics in contemporary electronics.
- 270A-270B. Electromagnetic Theory (3-3)
 Prerequisite: Physics 170. 270A is prerequisite to 270B.
 Boundary value problems; time varying electric and magnetic fields; propagation of radiation; antennas, wave guides.
- 275A-275B. Quantum Mechanics (3-3)
 Prerequisites: Physics 151, 175. 275A is prerequisite to 275B.
 Quantum theory of radiation, molecular and nuclear systems. Approximation methods.
280. Theory of the Solid State (3)
 Prerequisites: Physics 175, 180, and 190.
 The band theory of solids, with applications to the electrical and optical properties of dielectrics, semi-conductors, and metals.
286. Advanced Optics (3)
 Prerequisite: Physics 186.
 Selected topics in advanced optics such as rigorous diffraction theory, optical spectra, lasers, non-linear optics, and applications of Fourier analysis to optical systems and information processing.
297. Research (1-3)
 Prerequisite: Consent of department chairman.
 Research in one of the fields of physics. Maximum credit six units applicable on a master's degree.
298. Special Study (1-3)
 Individual study. Six units maximum credit.
 Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
299. Thesis (3)
 Prerequisites: An officially appointed thesis committee and advancement to candidacy.
 Preparation of a project or thesis in physics for the master's degree.

POLITICAL SCIENCE

GENERAL INFORMATION

The Department of Political Science, in the School of Arts and Letters, offers graduate study leading to the Master of Arts degree in Political Science. For graduate study in connection with the Master of Arts degree in Social Science, refer to this bulletin under Social Science. Research facilities provided by the Department of Political Science include the Public Affairs Institute, the Methodology Laboratory, and the International Relations Center. The Department of Political Science is an associate member of the Inter-University Consortium for Political Research.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to San Diego State with unclassified graduate standing, and to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. In addition, students seeking the Master of Arts degree in Political Science must have completed 30 units of social science including at least 12 upper division units in political science as approved by the department, and must have earned an undergraduate grade point average of not less than 3.0 in the major field.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy as stated in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes a minimum of 24 units in political science, from courses listed below as acceptable on master's degree programs of which at least 15 units must be in 200-numbered courses including Political Science 200, The Scope and Method of Political Science, and Political Science 299, Thesis. A final oral examination on the general field of the thesis is also required.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in Political Science are available to a limited number of qualified students. Application blanks and further information may be obtained from the Chairman of the Department of Political Science.

FACULTY

Chairman, Department of Political Science: R. C. Gripp, Ph.D.
Graduate Adviser: R. C. Gripp
Professors: C. F. Andrain, Ph.D.; I. K. Feierabend, Ph.D.; M. D. Generales, Degree in Law and Political Science, University of Athens; R. C. Gripp, Ph.D.; H. L. Janssen, Ph.D.; T. J. Kahng, Ph.D.; N. V. Joy, Ph.D.; L. V. Padgett, Ph.D.
Associate Professors: Melvin Crain, Ph.D.; J. A. Hobbs, Ph.D.; D. H. Johns, Ph.D.; E. W. Miles, Ph.D.; Betty A. Nesvold, Ph.D.; W. A. Schultze, Ph.D.
Assistant Professors: D. D. Anderson, M.A.; G. C. Byrne, Ph.D.; J. J. Conniff, M.A.; C. H. Cutter, M.A.; R. Y. Funston, Ph.D.; J. M. Jutkowitz, M.A.; K. R. Keiser, A.B.; H. J. Lewin, Ph.D.; R. C. Moe, Ph.D.; K. S. Pedersen, M.A.; L. M. Terrell, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN POLITICAL SCIENCE

UPPER DIVISION COURSES

- | | |
|--------------------------------------------------------|---------------------------------------------------------------|
| 100A-100B. Research Methods in Political Science (3-3) | 172. International Organization (3) |
| 105. American Political Thought (3) | 173. Principles of International Law (3) |
| 111A-111B. Theory of the State (3-3) | 174. National Security Policy (3) |
| 112. Modern Political Thought (3) | 175. International Relations of the Latin-American States (3) |
| 113. The Theory of Political Inquiry (3) | 176. International Relations of the Developing Nations (3) |
| 114. Problems in Political Theory (3) | 177. Comparative Foreign Policies (3) |
| 116. American National Government (3) | 180. Government of England (3) |
| 118. Urban Politics (3) | 181. Government of the Soviet Union (3) |
| 119. Community Political Behavior (3) | 183. Governments and Politics of South and Southeast Asia (3) |
| 120. Political Parties (3) | 184. The Mexican Political System (3) |
| 121. Political Behavior (3) | 185. Governments of Continental Europe (3) |
| 122. Political Communication (3) | 186. Comparative Communist Governments (3) |
| 123S. Contemporary American Politics (3) | 187. Governments and Politics of the Far East (3) |
| 124. The American Presidency (3) | 188. Governments and Politics of the African States (3) |
| 126. Political Groups and Movements (3) | 189. Government and Politics of the Middle East (3) |
| 129. The Politics of Bureaucracy (3) | 190. Comparative Political Systems (3) |
| 130. Government and Public Policy (3) | 191. Government and Politics of the Developing Areas (3) |
| 135. The Supreme Court and Contemporary Issues (3) | 192. Political Change in Contemporary Africa (3) |
| 138. Law and the Political System (3) | 193. Proseminar in Cross-National Studies (3) |
| 139A-139B. American Constitutional Law (3-3) | 194. Political Change in Latin America (3) |
| 165. Dynamics of Modern International Crises (3) | 195. Political Systems in Latin America (3) |
| 170A-170B. International Relations (3-3) | |
| 171. The Conduct of American Foreign Relations (3) | |

GRADUATE COURSES

200. Seminar in the Scope and Method of Political Science (3)
The discipline of political science and systematic training in its methodology. Required of all applicants for advanced degrees in political science.
210. Seminar in Political Theory (3)
Maximum credit six units applicable on a master's degree.
215. Seminar in American National Government (3)
Maximum credit six units applicable on a master's degree.
220. Seminar in Politics (3)
Prerequisite: Six units of upper division political science, three units of which must come from Political Science courses 115 through 134.
Process by which individuals and groups make demands upon political decision-makers; emphasis on the styles, structures, channels, and consequences of interest articulation. Maximum credit six units applicable on a master's degree.
221. Seminar in Political Participation (3)
Prerequisite: Six units of upper division political science, three of which must be from Political Science courses 115 through 134.
American political culture and subculture groupings as related to various dimensions of political behavior.

225. **Seminar in the Legislative Process (3)**
Prerequisite: Six units of upper division political science.
Legislative institutions and processes. Emphasis on U.S., national, state, and local legislatures.
226. **Seminar in Political Psychology (3)**
(Same course as Psychology 226.)
Prerequisites: Six units selected from Psychology 110, 112, 145; Political Science 100A-100B, 121, 122, 190.
Psychological factors on the individual's political behavior; psychological theory as it applies to political variables such as: ideology, conflict, consensus, and participation.
230. **Seminar in Public Law (3)**
Maximum credit six units applicable on a master's degree.
250. **Seminar in Local Government (3)**
Selected problems of state and local government and inter-governmental relations. Maximum credit six units applicable on a master's degree.
255. **Seminar in Metropolitan Government and Politics (3)**
Prerequisite: Political Science 117 or 118 or 119.
Government and politics in the world's major metropolitan areas. Maximum credit six units applicable on a master's degree.
270. **Seminar in International Relations (3)**
Maximum credit six units applicable on a master's degree.
272. **Seminar in International Organization (3)**
Prerequisite: Political Science 172.
Analysis of selected problems of international organization with special reference to those of the United Nations. Oral and written reports.
275. **Seminar in Theories of International Relations (3)**
Prerequisite: Political Science 170A or 170B.
Theoretical concepts used in the study of international political systems. Maximum credit six units applicable on a master's degree.
280. **Seminar in General Comparative Political Systems (3)**
Prerequisite: Political Science 190 or 191, and three additional units of upper division political science.
The field of comparative politics, including historical developments, major theoretical approaches, substantive concerns, uses and limitations of the comparative method, methodological innovations in study of foreign political systems.
281. **Seminar in Western Political Systems (3)**
Prerequisite: Six units of upper division political science.
Comparative study of European and other modern political systems. Conditions responsible for the attainment and maintenance of democratic government. The relationship between social modernity and the functioning of Western democratic political institutions.
282. **Seminar in the Political Systems of the Developing Nations (3)**
Prerequisite: Six units of upper division political science.
Theoretical analysis of political development, modernization, and industrialization in the emerging nations. Search for valid generalizations about the non-Western political process. Political trends and developments in the developing nations.
283. **Seminar in Latin American Political Systems (3)**
Prerequisite: Political Science 190 or 191, and three additional units of upper division political science.
Political developments in selected Latin American nations, with an emphasis on the Mexican political system.

284. **Seminar in Communist Political Systems (3)**
Prerequisite: Six units of upper division political science.
The differences and similarities among Communist nations in Europe and Asia, with particular reference to instruments of power and ideology. A comparison of Communist ruling techniques and processes.
290. **Bibliography (1)**
Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.
291. **Problem Analysis (3)**
Analytical treatment of selected problems in political science. Review of methods for investigation and reporting of data. Consideration of problems in preparation of project or thesis.
297. **Research in Political Science (3)**
Prerequisite: Consent of the department chairman.
Research in political theory, political parties, comparative government, international relations, public law, or American government.
298. **Special Study (1-3)**
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.
299. **Thesis (3)**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

PSYCHOLOGY

GENERAL INFORMATION

The Department of Psychology, in the College of Sciences, offers graduate study leading to the Master of Arts degree in Psychology for students who plan to pursue their graduate education through to the doctorate without interruption upon receipt of their master's degree. The doctorate in psychology is not now offered at San Diego State. Students who wish to prepare for employment in psychology upon completion of the master's degree program should consider one of the three concentrations offered in the Master of Science degree described below.

Extensive modern resources are available on campus, at the San Diego Zoo, and in other community facilities for graduate education and research in comparative, experimental, and physiological psychology. Clinical clerkship and practicum facilities are available on campus and in such local agencies as the San Diego County University Hospital, the San Diego Day Treatment Center, the Child Guidance Clinic of San Diego, and in the Guidance Department of the San Diego City Schools. Opportunities for experience in industrial-personnel psychology and in human factors are available in the aerospace and other local industries, and at nearby military research and personnel-processing units.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. To qualify for admission to classified graduate standing in psychology, the student must also have:

- An undergraduate major in psychology, consisting of at least 24 upper division units, with a grade point average at least 3.0. The major must include work in general psychology, physiological psychology, statistical methods, psychological testing, theories of personality, and at least two courses in laboratory psychology. At San Diego State, these specific course requirements are met by Psychology 40, 50, 70, 105, 110, 178, and one course from 111, 112, 113, 114, 115, or 116.
- A grade point average of not less than 3.0 in the last 60 units of his undergraduate program.
- A score above the 50th percentile rank on the Graduate Record Examination Advanced Test in Psychology. The student should take this test during the last semester of his undergraduate major in the field or immediately upon completion of the major.

ADVANCEMENT TO CANDIDACY

The student must satisfy the general requirements for advancement to candidacy as stated in Part Three of this bulletin.

GENERAL REQUIREMENTS FOR ALL MASTER'S DEGREE PROGRAMS

In addition to meeting the requirements for admission to the Graduate Division with classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units approved by the departmental graduate adviser.

All students who have completed at least 24 upper division units in psychology must complete 202A or 202B their first graduate semester, and the alternate half of the course their second semester. Classified graduate standing is not required for enrollment in Psychology 202A or 202B, but unclassified graduate students are not permitted to enroll in any other 200-numbered course in psychology except with the approval of the graduate adviser.

Psychology 299, Thesis, and an oral examination on the thesis are required in all master's degree programs. There is no foreign language requirement for any advanced degree in psychology at San Diego State, but students who aspire to a doctorate in this field would be well advised to develop competence in French, German, or Russian since most doctoral programs require candidates to be able to translate publications in two of these languages.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

Within the 30 unit general requirement set forth above, the Master of Arts program requires completion of at least 24 units of approved graduate courses in psychology including Psychology 202A, 202B, 222, 223, and 299. Psychology 270, 275, and 277 are required for this program if similar content has not been completed as an undergraduate.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

Within the 30 unit general requirement set forth above, the Master of Science degree may be obtained with the following three concentrations:

(1) *Clinical Psychology*: At least 30 units of approved upper division or graduate courses in psychology, including Psychology 202A, 202B, 204, 205, 211 or 212, 296, and 299. Psychology 270 is required for this program if similar content has not been completed as an undergraduate. Registration in Psychology 296, directed Field Experience, is contingent upon prior cooperative arrangement by the student and the field agency in consultation with the Psychology Department Practicum Committee.

(2) *Industrial-Personnel Psychology*: At least 30 units of approved upper division or graduate courses in psychology, including Psychology 202A, 202B, 219, 220, 223, 225, 297, and 299. Psychology 270 is required for this program if similar content has not been completed as an undergraduate.

(3) *General Psychology with the Community College Teaching Credential*: At least 28 units of approved upper division or graduate courses in psychology including Psychology 202A, 202B, 225, 233 or 296, and 299. Psychology 270, 275, and 277 are required for this program if similar content has not been completed as an undergraduate. Registration for Psychology 296 is contingent upon prior cooperative graduate. Registration for Psychology 296 is contingent upon prior cooperative arrangements as set forth above under Clinical Psychology. Other requirements for the credential include the completion of Education 201, 251, and 316. Education 201 may be included among the 30 units required for the master's degree. Education 223, normally required in the credential program, is routinely waived for Community College Teaching Credential candidates in the Department of Psychology, but completion of the course has proved to be advantageous to individual students. The combined Master of Science in Psychology—Community College Teaching Credential program requires a minimum of 36 semester units.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in psychology are available to a limited number of qualified students. Application blanks and further information may be obtained from the Chairman of the Department.

FACULTY

Chairman, Department of Psychology: Robert Penn, Ph.D.

Graduate Adviser: W. A. Hunrichs

Credential Adviser: W. D. Kinnon

Professors: E. F. Alf, Ph.D.; C. F. Dicken, Ph.D.; Rosalind Feierabend, Ph.D.; P. S. Gallo, Jr., Ph.D.; J. M. Grossberg, Ph.D.; R. C. Harrison, Ph.D.; W. A. Hillix, Ph.D.; W. A. Hunrichs, Ph.D.; O. J. Kaplan, Ph.D.; R. L. Karen, Ph.D.; Norman Kass, Ph.D.; W. D. Kinnon, Ph.D.; F. P. Leukel, Ph.D.; E. F. O'Day, Ph.D.; H. C. Peiffer, Jr., Ph.D.; Robert Penn, Ph.D.; Robert Radlow, Ph.D.; D. M. Rumbaugh, Ph.D.; W. R. Stevens, Ph.D.; M. B. Turner, Ph.D.; Virginia W. Vocks, Ph.D.

Associate Professors: S. H. Gilbreath, Ph.D.; Herbert Harari, Ph.D.; J. W. Koppman, Ph.D.; B. T. Leckart, Ph.D.; J. R. Levine, Ph.D.; Marigold Linton, Ph.D.; Elizabeth Lynn, Ph.D.; R. D. McDonald, Ph.D.; C. E. Parker, Ph.D.; T. T. Psomas, Ph.D.; Miriam J. Rodin, Ph.D.; Margaret C. Sand, Ph.D.; J. M. Sattler, Ph.D.; R. H. Schulte, Ph.D.; J. P. Sheposh, Ph.D.; J. R. Smith, Ph.D.

Assistant Professors: J. B. Bryson, Ph.D.; R. H. Defran, M.A.; L. R. Franzini, Ph.D.; R. G. Graf, Ph.D.; F. W. Hornbeck, Ph.D.; L. E. Hufford, Ph.D.; E. A. Jacobson, Ph.D.; Sharon M. McCordick, Ph.D.; Sandra O. Mollenauer, Ph.D.; J. P. Ohnesorge, A.B.; Rod Plotnik, Ph.D.; Donald Pollack, Ph.D.; S. A. Richards, Ph.D.; H. A. Tilker, Ph.D.; R. M. Yarenko, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS
IN PSYCHOLOGY

UPPER DIVISION COURSES IN PSYCHOLOGY

- | | |
|------------------------------------------------------------|--------------------------------------------------------|
| 108. Advanced Developmental Psychology (3) | 123. Organizational Psychology (3) |
| 109. Mental Deficiency (3) | 124. Engineering Psychology (3) |
| 111. Experimental Psychology: Perception (4) | 125. Human Factors Psychology (4) |
| 112. Experimental Psychology: Social (4) | 133. Principles of Interviewing (3) |
| 113. Experimental Psychology: Physiological (4) | 141. Neural Bases of Behavior (3) |
| 114. Experimental Psychology: Comparative (4) | 142. Physiological Psychology (3) |
| 115. Experimental Psychology: Personality and Clinical (4) | 146. Advanced Topics in Social Psychology (3) |
| 116. Experimental Psychology: Learning (4) | 150. Abnormal Psychology (3) |
| 117. Experimental Psychology: Primate Behavior (4) | 151. Introduction to Clinical Psychology (3) |
| 118. Experimental Psychology: Child Development (4) | 152. Introduction to Methods of Counseling (3) |
| 120. Consumer Psychology (3) | 153. Advanced Abnormal Psychology (3) |
| 121. Personnel and Industrial Psychology (3) | 171. Intermediate Correlational Analysis (3) |
| 122. Public Opinion Measurement (3) | 174. Theories of Perception (3) |
| | 176. Principles and Practice of Personnel Training (4) |
| | 179. Philosophical Issues in Psychology (3) |

GRADUATE COURSES

200. Seminar (3)
Prerequisite: 24 upper division units of psychology or consent of instructor.
An intensive study in advanced psychology, topic to be announced in the class schedule. Maximum credit six units applicable on a master's degree.
201. Seminar (3)
Prerequisite: 24 units in psychology, which may include educational psychology courses in the School of Education.
A review, integration, and supplementation of the student's knowledge of psychology.
- 202A-202B. Contemporary Psychology (3-3)
Prerequisite: Bachelor's degree in psychology.
A comprehensive survey of contemporary literature in psychology, dealing with recent developments in the areas of learning and motivation, perception, psychophysiology, personality and psychodynamics, social behavior, and experimental inference.
204. Psychological Assessment I (4)
Two lectures and six hours of laboratory.
Prerequisites: Psychology 105, 150, 178, and consent of the Graduate Adviser.
Theory and practice in assessment of intelligence and special abilities.
205. Psychological Assessment II (4)
Two lectures and six hours of laboratory.
Prerequisites: Psychology 151, 204, and consent of the Graduate Adviser.
Theory and practice in assessment of personality and behavior disorders.
211. Behavior Disorders of Childhood and Adolescence (3)
Two lectures and three hours of laboratory.
Prerequisites: Psychology 106, 150, 151, and consent of the Graduate Adviser.
Contemporary approaches to emotional and behavioral problems of children and youth. Considers developmental, cognitive, and social variables as well as theory and treatment.

212. Behavior Disorders of Adults (3)
Two lectures and three hours of laboratory.
Prerequisites: Psychology 150, 151, and consent of the Graduate Adviser.
Contemporary approaches to emotional and behavioral problems of adults. Considers developmental, cognitive and social variables as well as theory and treatment.
219. Seminar in Personnel Psychology (3)
Prerequisites: Psychology 121, and consent of the Graduate Adviser.
Problems and procedures in selection, classification, and performance appraisal, focusing on testing in industry, the interview, and other selection and assessment devices. Criterion development and measurement methods.
220. Seminar in Organizational Psychology (3)
Prerequisites: Psychology 121 or Business Administration 145, and consent of the Graduate Adviser.
Applications of psychological principles and methods of investigation to problems of industrial relations and motivation of employees; factors influencing morale and employee productivity; criteria of job proficiency; psychological aspects of worker-management relationships and leadership.
221. Seminar in Problems in Social Psychology (3)
Prerequisites: Psychology 110, 145, 175, and consent of the Graduate Adviser.
Factors influencing the formation of attitudes, opinions, and stereotypes; the establishment of roles during socialization of the individual; social crises, change, and resistance to change; the causes and alleviation of interpersonal conflict.
222. Seminar in Theoretical Psychology (3)
Prerequisites: Psychology 175, 178, and consent of the Graduate Adviser.
Basic concepts and principles integrating information in the areas of learning, emotion, motivation, personality, and social interaction. Relationships of scientific methods to the formation and testing of hypotheses and other conceptualizations.
223. Experimental Design (3)
Prerequisites: Psychology 110, 170, and consent of the Graduate Adviser.
Principles and methods of planning and carrying out systematic investigations to answer questions concerning human behavior with stress on the interdependence of experimental design and statistical evaluation of results. Practice in formulation of testable hypotheses, techniques of equating groups, solution of sampling problems, and interpretation of results.
224. Advanced Experimental (3)
One lecture and six hours of laboratory.
Prerequisite: Psychology 223, and consent of the Graduate Adviser.
Methods, techniques, and apparatus applicable to questions of various types. Special attention is given to sources of error, limitations on interpretations, and psychophysical methods. Students will design and carry out experiments in preparation for original independent investigations.
225. Principles of Test Construction (3)
Prerequisites: Psychology 105, 170, and consent of the Graduate Adviser.
Detailed consideration of adequate sampling techniques, item construction, item analysis, determination and enhancement of reliability and validity of tests.
226. Seminar in Political Psychology (3)
Prerequisites: Six units selected from: Psychology 110, 112, 145, Political Science 100A-100B, 121, 122, 190, and consent of the Graduate Adviser.
Psychological factors on the individual's political behavior; psychological theory as it applies to political variables such as: ideology, conflict, consensus, and participation. (Same course as Political Science 226.)
230. Seminar in Physiological Correlates of Behavior (3)
Prerequisites: Psychology 50, 113 or 142, or nine units of biology; and consent of the Graduate Adviser.
An exploration of current research and theory in physiological psychology with emphasis on behavioral correlates and psychophysiology.

231. **Seminar in Ethology and Comparative Psychology (3)**
Prerequisites: Psychology 114 or Biology 110, and consent of the Graduate Adviser.
Current problems in ethology and comparative animal behavior. Maximum credit six units applicable on a master's degree. (Same course as Biology 231.)
233. **Counseling and Psychotherapy Laboratory (4)**
Two lectures and six hours of laboratory.
Prerequisites: Psychology 110, 151, 152, 175, 178, and consent of the Graduate Adviser.
Supervised research and practice in interpersonal encounter, with emphasis on the attainment of personality change.
270. **Statistical Theory (3)**
Prerequisites: Psychology 70, 105, and consent of the Graduate Adviser.
Quantitative methods in psychology with emphasis on theories of chi-square, and the analysis of variance and co-variance.
275. **Advanced Principles of Learning (3)**
Prerequisites: Psychology 110, and consent of the Graduate Adviser.
The empirical data, basic principles and theoretical positions of major learning theorists.
277. **Seminar in the History of Psychology (3)**
Prerequisites: Psychology 110, and consent of the Graduate Adviser.
The history of modern psychology.
296. **Directed Field Experience (1-3)**
Prerequisite: Limited to classified graduate students in psychology, with appropriate qualifications in a field of professional skill.
The student must arrange his practicum setting in cooperation with the chairman of the Psychology Department Practicum Committee and with the express approval of that committee during the semester prior to enrolling for credit in this course. Maximum credit six units.
297. **Research (1-3)**
Research in one of the fields of psychology. Maximum credit six units applicable on a master's degree.
298. **Special Study (1-3)**
Individual projects involving library or laboratory research in any area of psychological investigation or interest. Maximum credit six units.
299. **Thesis (3)**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree. Credit is contingent upon acceptance of the completed thesis by the Department of Psychology.

PUBLIC ADMINISTRATION AND URBAN STUDIES

GENERAL INFORMATION

Public Administration and Urban Studies, in the College of Professional Studies, offers graduate study leading to the Master of Public Administration degree, the Master of Science in Criminal Justice Administration degree, and the Master of City Planning degree. Research facilities provided include the Institute of Public and Urban Affairs, the Public Administration Center, and the Political Science Methodology Center. The San Diego metropolitan community affords significant internship opportunities for the graduate student in federal, state, and local government agencies.

MASTER OF PUBLIC ADMINISTRATION DEGREE

This degree permits the selection, under advisement, of a program of course and seminar work which may be oriented toward a generalist approach or toward an emphasis on personnel administration, fiscal policy and administration, recreation administration or urban administration. Since management responsibilities are shared by administrators in a number of professional areas in the public service, the student is encouraged to supplement his study of government and administration with graduate courses in economics, sociology, psychology, business administration, and other related areas.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to San Diego State with unclassified graduate standing, and to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. The student must also satisfy the following requirements: (1) have completed at least 30 undergraduate units in approved social science courses (students with unclassified graduate standing may remove deficiencies in this requirement by taking courses which are in addition to the 30-unit minimum for the degree); and (2) have maintained an undergraduate grade point average of not less than 3.0 (B) in the major field.

ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, which are described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF PUBLIC ADMINISTRATION DEGREE

In addition to meeting the requirements for classified graduate standing, the student must satisfy the basic requirements for the master's degree as described in Part Three of this bulletin. The student must also complete as a part of his program: (1) at least eighteen units of 200-numbered courses, including Public Administration 201; (2) a minimum of twelve units of upper division or graduate courses in public administration or related fields selected under advisement. Public Administration 299, Thesis, must be included in the program unless Plan B with a comprehensive examination in lieu of the thesis is selected by the student with the approval of the graduate adviser. The student's program must include a minimum of six units in one of the fields of concentration: general administration; urban administration; personnel administration; recreation administration; or fiscal policy and administration. The student must include in his program Public Administration 296, Internship in Public Administration, unless this requirement is waived by the graduate adviser on the basis that he has had satisfactory qualifying experience. The internship normally will be served in a governmental agency where the intern will perform duties of an administrative nature. Placements typically will be made in the office of a city manager, a budget office, a personnel office, or in the office of the head of a major operating department.

MASTER OF CITY PLANNING DEGREE

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to San Diego State with unclassified graduate standing, and to the Graduate Division with classified standing, as described in Part Three of this bulletin. The student must also satisfy the following requirements: (1) possess a bachelor's or higher degree in sociology, geography, political science, economics, architecture, or landscape architecture, or any fields related to planning. (Students with degrees other than those listed may be allowed to enter the program under appropriate conditions); (2) have had a minimum of 6 units in political science, 6 units in sociology, 6 units in economics, and 3 units in geography, or the equivalent of these courses. In the event that deficiencies occur in a student's background and training, the graduate committee will examine the student's past record, and recommend a program to make up the deficiencies.

Students seeking admission to the graduate program in urban planning which leads to the Master of City Planning degree should address their inquiries to the Director of the program. Detailed instructions concerning application procedures will be sent to the applicant along with all necessary forms. As there are specific requirements for the program it is not sufficient merely to file the general college admission forms. Students are admitted to the program only in the fall semester of each year and applications must be received no later than March 31. After the student has received notification of tentative admission to the program from the Director, he must file an application for admission to San Diego State with the Dean of Admissions, and an application for admission to the Graduate Division with the Dean of Graduate Studies.

ADVANCEMENT TO CANDIDACY

To be eligible for advancement to candidacy and admission to the second year of the program for this degree, the student must, in addition to holding classified graduate standing, have completed at least 24 units of the course work listed on the official program with an overall grade point average of 3.0 or higher, and otherwise comply with the regulations of the Graduate Division as described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF CITY PLANNING DEGREE

In addition to meeting the requirements for classified graduate standing in the Graduate Division for the purpose of pursuing the Master of City Planning degree, the student must complete an approved program of studies consisting of at least 56 units of approved upper division and 200-numbered courses, to include:

- a. City Planning 261, Urban Design and Land Use Planning Studio (6);
City Planning 266A, Seminar in Urban Planning (3);
City Planning 266B, Seminar in Urban Planning Methodologies (3);
City Planning 266C, Seminar in Urban Planning Implementation (3);
City Planning 266D, Seminar in Urban Planning Theory (3)
- b. Public Administration 148, The Metropolitan Area (3);
Public Administration 160, Principles of Planning (3)
- c. Nine units of 200-numbered courses in planning administration, history, readings and research.
- d. City Planning 296, Internship in Urban Planning (3-6)
- e. Electives to complete the program will be selected with the assistance of the adviser, from appropriate courses in anthropology, art, economics, geography, political science, social work, sociology, and other disciplines deemed appropriate.

At least 30 units must be completed in residence at San Diego State, and at least 24 units of program courses shall be enrolled in and completed after advancement to candidacy.

Not more than a total of 9 units in courses 297 and 298 will be accepted for credit toward the degree.

The student is required to pass a final comprehensive examination.

MASTER OF SCIENCE IN CRIMINAL JUSTICE ADMINISTRATION DEGREE

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to San Diego State with unclassified graduate standing, and to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin.

Students seeking admission to the graduate program in criminal justice administration which leads to the Master of Science in Criminal Justice Administration degree should address their inquiries to the Director of the program. Detailed instructions concerning application procedures will be sent to the applicant along with all necessary forms. As there are specific requirements for the program it is not sufficient merely to file the general college admission forms. After the student has received notification of tentative admission to the program from the Director, he must file an application for admission to San Diego State with the Dean of Admissions, and an application for admission to the Graduate Division with the Dean of Graduate Studies.

ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, which are described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE IN CRIMINAL JUSTICE ADMINISTRATION

In addition to meeting the requirements for classified graduate standing, the student must satisfy the basic requirements for the master's degree as described in Part Three of this bulletin and must have made up any deficiencies in his undergraduate program. The student must also complete as part of his graduate program the following: (1) at least 18 units of 200-numbered courses, including Public Administration 201, 210, 216, 245, and 291 or 297; (2) a minimum of 12 units of upper division or graduate courses in elective courses selected with the approval of the graduate adviser. Public Administration 299, Thesis, must be included in the program unless Plan B with a comprehensive examination in lieu of the thesis is selected by the student with the approval of the graduate adviser. If Plan B is selected, the student must select areas of concentration with the approval of the Director of the Criminal Justice Administration program.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in public administration are available to a limited number of qualified students. Application blanks and further information may be obtained from the Director of Programs in Public Administration and Urban Studies.

FACULTY

Director, Public Administration and Urban Studies: J. D. Kitchen, Ph.D.
Director, City Planning Program: J. A. Clapp, Ph.D.
Director, Criminal Justice Administration Program: G. T. Gitchoff, D.Crim.
Graduate Advisers:
Master of Public Administration: W. R. Bigger, J. A. Gazell, R. A. Hamilton, J. D. Kitchen, R. F. Wilcox
Master of Science in Criminal Justice Administration: G. T. Gitchoff
Master of City Planning: W. R. Bigger
Professors: W. R. Bigger, Ph.D.; J. D. Kitchen, Ph.D.; D. E. Walker, Ph.D.; R. F. Wilcox, Ph.D.
Assistant Professors: J. A. Clapp, Ph.D.; J. A. Gazell, Ph.D.; G. T. Gitchoff, D.Crim.; R. A. Hamilton, Ph.D.; M. G. Walshok, B.A.
Lecturer: G. C. Erikson, M.S.

**COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS
IN PUBLIC ADMINISTRATION AND URBAN STUDIES**

UPPER DIVISION COURSES

Public Administration

- 110. Law Enforcement Administration (3)
- 111. Administration of Juvenile Justice (3)
- 112. The Administration of Criminal Law (3)
- 142. Management of State Governments (3)
- 143. Management of Urban Governments (3)
- 144. Public Personnel Administration (3)
- 145. Administrative Behavior (3)
- 146. Administration of Justice (3)
- 147. Administration and Public Policy Development (3)
- 149. Comparative Public Administration (3)

Public Administration

- 152. Administrative Management (3)
- 153. Management of the Federal Government (3)
- 155. Regulatory Administration (3)
- 156. Administration Systems Analysis (3)
- 162. Fiscal and Budgetary Policy (3)

Urban Studies

- 148. The Metropolitan Area (3)
- 150. Decision-Making in the Urban Community (3)
- 154. Intergovernmental Relations in the United States (3)
- 160. Principles of Planning (3)

GRADUATE COURSES IN PUBLIC ADMINISTRATION AND URBAN STUDIES

- 201. **Scope and Method of Public Administration (3)**
Prerequisite: Six units of upper division political science. Evolution of large-scale public bureaucracies; development of public administration as an academic discipline; research methodologies of public administration.
- 203. **Seminar in Theory of Administrative Organization (3)**
Prerequisite: Public Administration 201. Organization and management; the executive role, decision making; bureaucracy; authority and power; communication and control and organizational system; tactics and strategies in effective management.
- 210. **Seminar in the Administration of Criminal Justice (3)**
Prerequisite: Public Administration 110 or 146. Administrative problems of criminal justice systems.
- 216. **Seminar in Correctional Administration (3)**
Prerequisite: Public Administration 116. Selected problems in the administration of correctional problems and institutions. Maximum credit six units applicable on a master's degree.
- 230. **Seminar in Public Financial Management (3)**
Prerequisite: Public Administration 162. Problems in the administration and budgeting of public revenues.
- 240. **Seminar in Public Administration (3)**
Maximum credit six units applicable to a master's degree.
- 241. **Seminar in Public Personnel Administration (3)**
Prerequisite: Public Administration 144. Analysis of special problems of public service recruitment; recent developments in government pay administration; planning administration, and evaluation of executive development and other training programs; collective bargaining in government; construction and administration of tests; evaluation of total personnel program.
- 242. **Seminar in Public Administration in Developing Nations (3)**
Prerequisite: Public Administration 140. Selected problems in administration of economic and technical assistance programs; problems of administration in developing areas.

243. Science, Technology, and Public Policy (3)

Prerequisite: Political Science 200, Public Administration 201, or equivalent seminar in another department.

The influence of science and technology on governmental policy-making; scientists as administrators and advisers; governmental policy-making for science and technology; government as a sponsor of research and development.

245. Readings in Public Administration (3)

Prerequisite: Political Science 200, Public Administration 201, or six graduate units of political science.

Selected readings in the literature of public administration.

249. Seminar in Comparative Administration (3)

Prerequisite: Public Administration 140. Selected problems in administration, organization, and processes of foreign and international governments. Maximum credit six units applicable on a master's degree.

250. Management of Urban Governments (3)

Selected problems in the management of urban governments. Maximum credit six units applicable on a master's degree.

255. The Metropolitan Area (3)

Prerequisites: Public Administration 143, 148, or 150. Selected problems in the government and administration of the world's major metropolitan areas.

260. Administration and Public Policy Development (3)

Prerequisite: 12 upper division units in social science. Social, political, and administrative problems involved in governmental program development and change.

291. Problem Analysis (3)

Analytical treatment of selected problems in Public Administration. Review of methods for investigation and reporting of data. Consideration of problems in preparation of projects or thesis.

296. Internship in Public Administration (1-6)

Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences. Admission by consent of instructor.

297. Research in Public Administration (3)

Prerequisite: Consent of Director, Public Administration and Urban Studies. Research in one of the areas of public administration.

298. Special Study (1-3)

Individual study. Six units maximum credit. Prerequisite: Consent of staff; to be arranged with the Director and instructor.

299. Thesis (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy. Preparation of a project or thesis for the master's degree.

GRADUATE COURSES IN CITY PLANNING

CP 261. Urban Design and Land Use Planning Studio (6)

Two lectures and eight hours of laboratory. Prerequisites: City Planning 266A and 266B. Laboratory course concerned with graphic expression, principles of land use planning, land development, and urban design. Project integrating principles. (Formerly numbered Public Administration 261A-261B.)

CP 262. History of Urban Planning (3)

History or urban development and of the field of urban planning.

CP 265. Seminar in Planning Administration (3)

The administration of the planning function in urban government. Relationships between the planner and public and private agencies, governmental departments and elected officials. Case studies and problems.

CP 266A. Seminar in Urban Planning (3)

Prerequisite: Public Administration 160.
Introductory seminar to the Master of City Planning Program, focusing upon the planner's perspective of urban problems and goal formation. (Formerly numbered City Planning 266.)

CP 266B. Seminar in Urban Planning Methodologies (3)

Prerequisite: City Planning 266A.
Procedures and analytical techniques in urban planning.

CP 266C. Seminar in Urban Planning Implementation (3)

Prerequisite: City Planning 266B.
Analysis of the content and function of zoning, subdivision regulation, codes, capital budgeting, urban renewal, model cities, and other implementation methods and programs.

CP 266D. Seminar in Urban Planning Theory (3)

Prerequisite: City Planning 266C.
Alternative theories of planning and organization of the planning function. Emphasis on conceptual foundations, relationship to governmental structure, decision-making, and ideological and ethical orientations.

CP 267. Readings in Urban Planning (3)

Selected topics in urban planning. Maximum credit six units applicable on a master's degree.

CP 296. Internship in Urban Planning (3-6)

Students will be assigned to various government agencies and will work under joint supervision of agency heads and the course instructor. Participation in staff and internship conferences. (Formerly numbered City Planning 293.)

CP 297. Research in Urban Planning (3)

Prerequisite: Consent of Director of City Planning Program.
Research in one of the areas of urban planning. Maximum credit six units applicable on a master's degree.

CP 298. Special Study (1-3)

Prerequisite: Consent of staff.
To be arranged with Director of City Planning and instructor. Individual study. Maximum credit six units.

RUSSIAN

GENERAL INFORMATION

The Department of German and Russian, in the College of Arts and Letters, offers graduate study leading to the Master of Arts degree in Russian.

The staff in charge of the graduate program in Russian is composed of professors whose native tongue is Russian, or who are familiar with Russia through travel or intensive studies, enabling them to present authoritatively the Russian language and culture. Library facilities include resources in Russian literature and linguistics, consisting of books, periodicals and newspapers. A foreign language laboratory with modern equipment is available to both graduate and undergraduate students.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. An undergraduate major in Russian, including 24 upper division units, must have been completed, at least six units of which must have been in a survey course in Russian literature.

ADVANCEMENT TO CANDIDACY

In addition to meeting the requirements for advancement to candidacy as described in Part Three of this bulletin, students may be required to pass a qualifying examination in Russian given by the Department of German and Russian.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units which includes a major consisting of at least 24 units in Russian, including at least 18 units in 200-numbered courses, including Russian 299, Thesis. If Plan B is followed, the student must pass a comprehensive examination in lieu of Russian 299.

ASSISTANTSHIPS

Graduate teaching assistantships in Russian are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of German and Russian: H. W. Paulin, Ph.D.
Graduate Adviser: Vytas Dukas
Credential Adviser: Vytas Dukas
Professor: Vytas Dukas, Ph.D.
Associate Professor: L. A. Kozlik, Ph.D.
Assistant Professors: Renate Bialy, M. A.; L. E. Fetzer, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN RUSSIAN

UPPER DIVISION COURSES

- 103. Old Russian Literature (3)
- 104. Russian Literature of the 18th Century (3)
- 105A-105B. The Russian Short Story, Drama, and Poetry of the 19th Century (3-3)
- 110A-110B. The Russian Novel of the 19th Century (3-3)
- 130. Russian Syntax and Stylistics (3)
- 131. Russian Phonology and Morphology (3)

GRADUATE COURSES

- 201. History of the Russian Language (3)
Prerequisite: 12 units of upper division Russian.
The historical development of the Russian language.

202A-202B. Old Church Slavic (3-3)

Prerequisite: 12 units of upper division Russian.
Structure of Old Church Slavic with readings and analysis of medieval Slavic texts.

203. Slavic Linguistics (3)

Prerequisite: 12 units of upper division Russian.
Selected topics in historical and comparative Slavic linguistics.

204A-204B. The Soviet Novel and Short Story (3-3)

Prerequisite: 12 units of upper division Russian.
Intensive study of major writers of Soviet prose fiction.

205. Russian Poetry from Pushkin to the Present (3)

Prerequisite: 12 units of upper division Russian.
The major Russian poets of the nineteenth and twentieth centuries.

253. Russian Literary Criticism (3)

Prerequisite: 12 units of upper division Russian.
Literary criticism from the early 18th century to the present.

255. Seminar: A Major Author or Movement (3)

Prerequisite: Russian 290.
A major author or movement. Maximum credit six units applicable to a master's degree.

290. Research and Bibliography (3)

Prerequisite: 12 units of upper division Russian.
Purposes and methods of research in Russian literature and Slavic linguistics.

298. Special Study (1-3)

Individual study. Six units maximum credit.
Prerequisite: 18 units of upper division Russian and consent of staff; to be arranged with department chairman and instructor.

299. Thesis (3)

Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

SOCIAL SCIENCE

GENERAL INFORMATION

The Master of Arts degree in Social Science is offered in the Departments of Anthropology, Economics, Geography, Political Science, and Sociology, in the College of Arts and Letters. (The Master of Arts degrees in Anthropology, Economics, Geography, History, Political Science, and Sociology are described in the appropriate sections of this bulletin.)

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin under Admission to the Graduate Division. In addition, students are expected to have completed at least 30 upper division units in at least three of the social sciences, of which at least 15 upper division units must be in the field in which they plan to concentrate, and at least 6 units in each of two other social science fields. A course in statistics, either upper or lower division, is required. In addition, the following courses or equivalents are required in the concentrations specified:

Anthropology: Have a minimum of 3.0 grade point average in anthropology courses taken for the baccalaureate degree; Anthropology 197, Investigation and Report; and at least 15 upper division units including courses in archaeology, ethnology, physical anthropology, and social anthropology.

Economics: Economics 100A-100B or 104A-104B.
Geography: Geography 1 and 2, and 15 units of upper division courses in geography, including three units from each of the following blocks of courses: 100-109, Systematic-Physical Geography; 110 or 111, Theoretical Geography; 180-119-139, Regional Geography; 150-179, Systematic-Cultural Geography; 180-189, Geographical Techniques and Methods.
Political Science: The required upper division units must be distributed among at least three of the six subfields listed in the General Catalogue.
Sociology: Sociology 1, 10, and 101.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy which are described in Part Three of this bulletin.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE IN SOCIAL SCIENCE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the Master of Arts degree as described in Part Three of this bulletin, the student must include in his graduate program a concentration in the social sciences defined as follows:

1. A minimum of 24 units from courses listed in this bulletin as acceptable on master's degree programs by the Departments of Anthropology, Economics, Geography, History, Political Science, and Sociology, including at least 15 units of 200-numbered courses in the social sciences.
2. A concentration in one of the areas of Social Science, except History, as determined by the graduate adviser. A concentration is defined to include at least fifteen units in one area on the master's degree program including at least nine units of 200-numbered courses in the area of concentration.
3. Six units in each of two additional fields of social science, including at least three units of 200-numbered courses in each.
4. Course 299, Thesis, is required in concentrations in Anthropology, Geography, Political Science, and Sociology. Plan B, requiring a written comprehensive examination in lieu of thesis, is available in the Economics and Geography concentrations. In addition, the following courses are required in the concentrations specified:
Geography: Geography 205, Geographic Research and Techniques of Presentation (3).
Political Science: Political Science 200, The Scope and Method of Political Science (3).

FACULTY

Graduate Advisers:

Anthropology: L. L. Leach
Economics: D. C. Bridenstine

Geography: E. A. Keen
Political Science: J. A. Hobbs
Sociology: D. S. Milne

Faculty members in the Departments of Anthropology, Economics, Geography, Political Science, and Sociology are listed in the appropriate sections of this bulletin.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN SOCIAL SCIENCE

Refer to course listings in the sections of this bulletin under the Departments of Anthropology, Economics, Geography, History, Political Science, and Sociology. In addition, other courses may be accepted on master's degree programs provided that such courses are approved by the graduate adviser in the field of concentration and by the Academic Requirements Committee of the Social Science Graduate Advisers.

SOCIAL WORK

GENERAL INFORMATION

The School of Social Work offers a two-year graduate curriculum leading to the Master of Social Work degree under approval granted by the Board of Trustees of the California State Colleges in May, 1963. The curriculum was developed in close cooperation with the Council on Social Work Education and was fully accredited by its Accreditation Commission in June, 1966.

The School of Social Work also offers a program of professional education which commences in the undergraduate curriculum and continues through one calendar year of graduate work, leading to the Master of Science in Social Work degree. The curriculum was approved in January, 1969 on an experimental basis for a four-year period effective in September, 1970, by the Accreditation Commission of the Council on Social Work Education. Only students completing the undergraduate major in social welfare at San Diego State or its equivalent can be considered for this program.

The objectives of the School of Social Work at San Diego State are to equip students with the essential knowledge, philosophy and basic skills for their responsible entry into the profession of social work. In order to achieve these objectives the School will assist students: to develop a philosophy which recognizes individual human welfare as the purpose and goal of social policy; to acquire attitudes which will permit the development and maintenance of professional relationships and professional standards; to develop the discipline and self-awareness essential to the professional social worker; to attain a level of competence necessary for beginning professional practice; and to accept responsibility for the continued development of their competence in the practice of social work.

To meet these objectives, the graduate curriculum in the School of Social Work offers a program of classroom and field instruction which includes course content in the following four major areas:

1. **Social Welfare Policy and Services.** Social welfare policy and services; their development, organization and operation; the purpose and status of current programs; the influence of social, economic and political factors; the role of the social worker in evaluation and improvement of existing programs with reference to the philosophy of social work; and the assessment of unmet needs and their resolution.
2. **Human Behavior and the Social Environment.** Normal growth and development of the individual from childhood through old age within the social contexts of the family, group relationships, occupational settings, and community structures; the nature and causes of impaired social and emotional functioning; the nature and changing character of social and cultural structures with attention to the interaction between the individual and his social environment and the reciprocal effects of the interaction.
3. **Social Work Practice.** Objectives, general theory, basic principles and values and ethics of the profession in social work practice; the first-year sequence is the same for all students and covers the fundamentals of practice; in the second year, there may be a concentration on intervention with individuals, families, and groups, or intervention with organizations and communities; appropriate attention to the enabling methods of research and administration.
4. **Field Instruction.** Practice carried on in field settings under educational direction, the objectives of which include: a beginning mastery of professional social work practice; the disciplined use of "self" to give professional service; the integrated use of knowledge, attitudes, and skills in achieving social work goals; broadening and deepening knowledge of the function and application of social work practice in a variety of fields and circumstances; and an understanding of and an involvement with the problems of concern to social work.

APPLICATION FOR ADMISSION

In seeking tentative admission to the program leading to the Master of Social Work degree or the Master of Science in Social Work degree, the student should write directly to the Dean of the School of Social Work requesting appropriate application materials. Detailed instructions concerning application procedures will be sent to the applicant along with all necessary forms.

Students are admitted only in the fall semester of each year and applications must be received by the Dean of the School of Social Work not later than March 31.

After the student has received notification of eligibility to the School of Social Work from the Dean of the School of Social Work, he must file an application for admission to San Diego State with the Dean of Admissions and an application for admission to the Graduate Division with the Dean of Graduate Studies as indicated below.

ADMISSION TO THE COLLEGE AND THE GRADUATE DIVISION

A student seeking admission to the curriculum leading to the Master of Social Work or the Master of Science in Social Work degree must:

1. Be admitted to San Diego State as an unclassified graduate student by the Office of Admissions of the College. (See procedures listed in Part Three of this bulletin on Admission of Graduate Students.)
2. Be admitted to the Graduate Division of San Diego State and to the School of Social Work. Requirements for admission to the Graduate Division (which include the completion of the Graduate Record Examination Aptitude Test and the filing of an official program) are stated in Part Three of this bulletin under Admission of Graduate Students to the Graduate Division. Requirements for admission to the School of Social Work are listed below.

SPECIFIC REQUIREMENTS FOR ADMISSION TO THE SCHOOL OF SOCIAL WORK

In addition to satisfying the requirements for admission to the Graduate Division of San Diego State, a student seeking admission to the school of Social Work must:

1. Have earned not less than a 2.75 grade point average on the undergraduate work taken for the baccalaureate degree. Desirable undergraduate preparation should include work in the behavioral and socio-humanistic studies and in statistics.
2. Submit a written personal history in the manner prescribed by the School of Social Work.
3. Be considered by references to be capable of graduate study and of developing professional responsibility. Such references may be secured from the student or otherwise obtained by the faculty.
4. Possess a personality judged suitable for the profession.
5. Arrange for a personal interview when so requested by the School.

MASTER OF SOCIAL WORK DEGREE

ADVANCEMENT TO CANDIDACY

Students who have been admitted to the School of Social Work for the fall semester will meet with their advisers during the second half of the spring semester following to discuss the advisability of undertaking the second year of the professional degree program.

To be eligible for advancement to candidacy and for admission to the second year of the program for this degree, the student must, in addition to holding classified graduate standing:

1. Have earned a 3.0 (B) grade point average on all courses required in the first year of his program.
2. Be recommended by the faculty of the School of Social Work.
3. Be approved for advancement by the Graduate Council of the Graduate Division.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SOCIAL WORK DEGREE

1. Fifty-six units of graduate work within the curriculum of the School of Social Work are required for the degree. Of these units
 - a. At least twenty-four must be completed in residence at San Diego State.
 - b. All transfer credits accepted for the degree must have been earned in a school of social work accredited by, or in the process of being accredited by, the Council on Social Work Education. Normally, a student who wishes to transfer credit earned in such a school of social work must have completed the requirements of that school for the first full academic year of graduate study.

- c. Of the fifty-six (56) units required for the MSW degree, those units designated as Seminar 291 may be fulfilled, with permission of the Dean of the School of Social Work, by substituting relevant courses in other schools and departments on the campus.
2. Credits earned more than five years prior to the date of admission to the School of Social Work at San Diego State are not acceptable and all work for the degree must be completed within seven years of the date when all requirements for the degree are completed. In special circumstances, students may be permitted to validate credits earned outside these time limits by passing satisfactorily comprehensive examinations on the outdated course or courses.
 3. A maximum of 9 units of combined credit in courses 297A-297B and 298 may be included on a student's official program for the Master of Social Work degree.
 4. All candidates for the degree must pass satisfactorily a comprehensive examination in lieu of a thesis under the provisions of Plan B as described elsewhere in this bulletin.
 5. For regulations concerning grade point averages, final approval for the granting of the degree, award of the degree, and diplomas, see the section entitled "Basic Requirements for the Master's Degree," in Part Three of this bulletin.

COURSE REQUIREMENTS

The program of study normally required for all beginning first-year graduate students in the Master of Social Work degree program is as follows:

Sequence	Semester				Total units
	I	II	III	IV	
Social Welfare Policy and Services.....	SW200 (2)	SW201 (2)	SW202 (2)	SW203 (2)	(8)
Human Behavior and Social Environment.....	SW220 (4)	SW221 (2)	SW222 (2)	SW233 or SW235 (2)	(8)
Social Work Practice.....	SW230 (2)	SW231 (2)	SW232 or SW234 (2)	SW253 or SW256 (5)	(18)
Field Instruction.....	SW250 (4)	SW251 (4)	SW252 or SW255 (5)	SW297B (2)	(8)
Research.....	SW290A (2)	SW290B (2)	SW297A (2)	SW291 (2-3)	(2)
Administration.....		SW291 (2-3)	SW205 (2)		(4-6)
Elective Seminar.....					(56-58)
Total units.....	(14)	(14-15)	(15)	(13-14)	

MASTER OF SCIENCE DEGREE IN SOCIAL WORK

ADVANCEMENT TO CANDIDACY

Students who have been admitted to the School of Social Work and have enrolled in the Master of Science program for the fall semester will meet with their advisers during the first half of the Spring semester following to discuss the advisability of undertaking the balance of the calendar year professional degree program.

To be eligible for advancement to candidacy and for admission to the summer session of the Master of Science degree program, the student must, in addition to holding classified graduate standing:

1. Have earned a 3.0 (B) grade point average on all courses required in the first semester of his program.
2. Be recommended by the faculty of the School of Social Work.
3. Be approved for advancement by the Graduate Council of the Graduate Division.

SPECIFIC REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

1. A minimum of thirty units of graduate work within the curriculum of the School of Social Work are required for the degree. Of these units
 - a. At least twenty-four must be completed in residence at San Diego State.

- b. Of the minimum thirty (30) units required for the Master of Science degree, those units designated by the course Social Work 291, Seminar, may be fulfilled, with permission of the Dean of the School of Social Work, by substituting relevant courses in other schools and departments on the campus.
- Credits earned more than five years prior to the date of admission to the School of Social Work at San Diego State are not acceptable and all work for the degree must be completed within seven years of the date when all requirements for the degree are completed. In special circumstances, students may be permitted to validate credits earned outside these time limits by passing satisfactorily comprehensive examinations on the outdated course or courses.
 - A maximum of 6 units of combined credit in courses 297A-297B and 298 may be included on a student's official program for the Master of Science in Social Work degree.
 - All candidates for the degree must pass satisfactorily a comprehensive examination in lieu of a thesis under the provisions of Plan B as described elsewhere in this bulletin.
 - For regulations concerning grade point averages, final approval for the granting of the degree, award of the degree, and diplomas, see the section entitled "Basic Requirements for the Master's Degree," in Part Three of this bulletin.
- The completion of the Master of Science in Social Work degree normally requires two full semesters' work followed by the completion of 8 units during the Summer Session.

COURSE REQUIREMENTS

The program of study normally required for all students in the Master of Science in Social Work degree program is as follows:

Sequence	Semester			Total units
	I	II	Summer (12 weeks)	
Social Welfare Policy and Services.....	SW202 (2)	SW203 (2)		(4)
Human Behavior and Social Environment.....	SW222 (2)			(2)
Social Work Practice (includes Field).....	SW236 (4)	SW237 (4)	SW238 (8)	(16)
Elective Seminar.....	SW291 (2-3)			(2-3)
Research.....	SW297A (2)	SW297B (2)		(4)
Administration.....		SW205 (2)		(2)
Total units.....	(12-13)	(10)	(8)	(30-31)

ADDITIONAL INFORMATION

WITHDRAWALS

Students in the School of Social Work are governed by the general regulations of San Diego State and the Graduate Division. For regulations governing withdrawals from courses, unofficial withdrawals, and probation and disqualification from San Diego State, see the section entitled "Regulations of the Graduate Division" in Part Three of this bulletin.

Any graduate student who has been admitted to the curriculum offered in the School of Social Work and whose performance therein is judged to be unsatisfactory with respect to scholastic, personal or professional standards by the faculty of the School of Social Work and the Graduate Council, may be required to withdraw from all graduate curricula at San Diego State. The standing of students so withdrawn will change from classified to unclassified.

PROBATIONARY ADMISSION

Students admitted to San Diego State with unclassified graduate standing and who do not fully meet all requirements for admission to the School of Social Work

may, under special circumstances, be admitted to the School of Social Work in probationary unclassified graduate standing. At the end of the first semester's work, the faculty of the School of Social Work shall recommend to the Dean of Graduate Studies that the student:

- Be disqualified from further participation in the curriculum, or
- Be continued in probationary unclassified standing for a second semester, or
- Be admitted to full participation in the curriculum with classified graduate standing.

FINANCIAL ASSISTANCE

Students in the School of Social Work are eligible for consideration for waivers of non-resident tuition fees and the other forms of financial assistance as described in Part Three of this bulletin.

The School of Social Work has a substantial number of scholarships, fellowships and other financial stipends available to students admitted to the School who need such help to finance their period of study. The requirements for these various stipends vary and can best be dealt with by direct correspondence with the Dean of the School of Social Work.

Students who need assistance in financing their professional education may request such help at the time of application. Such requests will be considered on an individual basis. An applicant must be accepted for admission to the School of Social Work before he will be recommended for an award.

FIELD INSTRUCTION DURING PERIODS OF COLLEGE HOLIDAYS

Because of the nature of field instruction and the student's responsibility to the agency to which he is assigned, and the clientele it serves, field instruction may continue on the regular work schedule of the agency under certain circumstances.

FACULTY

Dean, School of Social Work: Kurt Reichert, Ph.D.
 Associate Dean, School of Social Work: J. B. Kelley, D.S.W.
 Professors: J. B. Kelley, D.S.W.; W. F. Lee, D.S.W.; Jean M. Maxwell, M.S.S.; Ruth H. Morgan, D.S.W.; Robert Ontell, D.S.W.; Jack Stumpf, Ph.D.; I. B. Tebor, Ph.D.; P. E. Weinberger, D.S.W.
 Associate Professors: Grace Andresen, D.S.W.; E. C. Brennen, D.S.W.; R. W. Griffin, Ph.D.; G. O. Haworth, D.S.W.; Gideon Horowitz, Ph.D.; W. H. Ishikawa, D.S.W.; Marion J. Kahn, M.S.; R. W. Kessel, M.S.W.; F.A. Manis, M.S.S.; Ann H. Pilcher, M.S.W.; D. M. Pilcher, M.S.W.
 Assistant Professors: J. A. Ajemian, M.S.; D. M. Anderson, M.S.W.; Kamilla U. Baily, M.S.W.; R. M. Bistriz, M.S.W.; Virginia L. Clary, M.S.W.; L. M. Cohen, M.S.W.; William Fletcher, M.S.W.; Martha Fort, M.S.W.; Winona Gilliam, M.S.W.; Rosalind Guidry, Ph.D.; Joanne Haworth, M.S.W.; Elsie Herman, M.A.; E. D. Hollander, Ph.D.; P. H. Raymer, M.S.W.; R. A. Ridders, M.S.W.; Maria A. Sardinias, M.S.W.; Jane M. Totman, D.S.W.; Catherine M. Watson, M.S.W.; Elizabeth V. Watson, M.S.
 Lecturers: C. T. Lauzon, M.S.W.; Emily A. Lucius, M.S.S.; R. W. Peer, M.S.W.; Sallie Seargeant, M.S.W.
 Appointments Under Grants from Outside Funds:
 Assistant Professor: Marta Schlatter, M.S.S.
 Lecturers: Inez M. Aikens, M.A.; E. F. Anderson, M.S.W.; J. L. Brewer, M.S.W.; Ruth M. Kukkonen, M.S.W.; S. P. Manos, M.S.W.; Mark Schriffin, M.S.W.; Barbara E. Shenko, M.S.S.; P. S. Treske, M.S.W.; L. A. Weissman, M.A.

COURSE GROUPINGS

Social Work Practice: Fundamentals of Practice: 230, 231; Field Instruction: 250, 251
 Social Work Practice: Intervention with Individuals and Groups: 232, 233; Field Instruction: 252, 253
 Social Work Practice: Intervention with Organizations and Communities: 234, 235; Field Instruction: 255, 256
 Social Work Practice integrated with field instruction for M.S.S.W. program: 236, 237, 238

GRADUATE COURSES

Prerequisite for enrollment in all graduate courses: admission to the School of Social Work.

- 200. Social Welfare Policy and Services I (2)**
Social welfare as a societal institution; philosophical, historical, and comparative analysis of the welfare functions, issues, and problems, with special focus on personal and social deprivation.
- 201. Social Welfare Policy and Services II (2)**
Prerequisite: Social Work 200
Conceptual analysis of social welfare programs related to income maintenance and other social service areas, including social insurance, child welfare, and community development.
- 202. Social Welfare Policy and Services III (2)**
Prerequisite: Social Work 201.
Problems and issues in emerging social welfare programs, including analysis of the structure of social services and of social work as a profession.
- 203. Social Welfare Policy and Services IV (2)**
Prerequisite: Social Work 202.
Analysis of existing or projected social welfare programs or service.
- 205. Social Work Administration I (2)**
Prerequisite: Social Work 202 or consent of the Dean.
Administration as an aspect of all social work practice. Nature of social work administration involving board and staff participation in determining goals and in planning programming and management operations to achieve goals. Administrative organization; interagency policy and control; management processes.
- 220. Human Behavior and Social Environment I (4)**
Theoretical perspectives on man in the changing world. View based on biological, psychological, interpersonal, and social structure assumptions over the life-cycle, for application to social work practice.
- 221. Human Behavior and Social Environment II (2)**
Prerequisite: Social Work 220.
Examination of deviant behavior from relative frameworks of a medical model and a career process model. Selected social problem areas are used as illustrations.
- 222. Human Behavior and Social Environment III (2)**
Prerequisite: Social Work 221.
Theories of natural and induced change in human behavior which have utility for social work practice.
- 230. Social Work Practice I (2)**
Prerequisite: Concurrent registration in Social Work 250.
Principles of social work practice with individuals, families, groups, and communities. Attention is given to social work objectives, principles and skills.
- 231. Social Work Practice II (2)**
Prerequisites: Social Work 230 and concurrent registration in Social Work 251.
Principles of social work practice with individuals, families, groups, and communities with emphasis on refinement of skills of social study and social problem analysis. Attention to interactional and small group processes in determination of goals and change.
- 232. Social Work Practice III (2)**
Prerequisites: Social Work 231 and concurrent registration in Social Work 252.
Analysis of social work intervention to motivate individuals, families, and groups toward change and problem solving. The implications for practice of the physical, social and emotional factors influencing people, and their interaction with social and economic groups of which they are a part.
- 233. Social Work Practice IV (2)**
Prerequisites: Social Work 232 and concurrent registration in Social Work 253.
Designed to offer opportunity for integration and application of the student's knowledge of an array of problem-solving methods in social work. Case material focuses on the specific content relevant to selected models of social problems experienced by individuals, families, and groups.
- 234. Social Work Practice V (2)**
Prerequisites: Social Work 231 and concurrent registration in Social Work 255.
Examination of applications of major theories of social change in organized behavior to improve the social environment. Use of selected model problems in social welfare planning; mobilization of resources; analysis of issues and resistances; designing programs and structures; and reassessment.
- 235. Social Work Practice VI (2)**
Prerequisites: Social Work 234 and concurrent registration in Social Work 256.
Exploration of collaborative social work role with other professional roles in planned institutional change. Differential applications of values, strategies, and power in social welfare and host settings, by and on behalf of various population groupings.
- 236. Social Work Practice VII (4)**
Laboratory field instruction enabling the student to integrate social work theory, knowledge and concepts in developing interventive skills with individuals, families, groups, organizations and communities.
- 237. Social Work Practice VIII (4)**
Prerequisite: Social Work 236.
Continuation of Social Work Practice VII with emphasis on refinements of skills in intervention with individuals, families, groups, organizations and communities.
- 238. Social Work Practice IX (8) S**
Prerequisite: Social Work 237.
Continuation of Social Work Practice VIII with emphasis on the further development of skills with individuals, families, groups, organizations, and communities.
- 250. Field Instruction I (4)**
Prerequisite: Concurrent registration in Social Work 230.
Field instruction in a public or voluntary social work setting. Experiences are drawn upon in relation to classroom learning to emphasize application of social work objectives, principles and skills to services to individuals, families, groups, and communities.
- 251. Field Instruction II (4)**
Prerequisite: Social Work 250 and concurrent registration in Social Work 231.
Continuation of field instruction initiated in Social Work 250. Opportunities are provided for the application of social study and social problem analysis to experience with interactional and small group processes.
- 252. Field Instruction III: Individuals, Families and Groups (4-5)**
Prerequisites: Social Work 251 and concurrent registration in Social Work 232.
Field instruction in a social work setting providing a concentration on social work practice aimed at achieving change in or on behalf of individuals, families, and groups. Practice under educational direction at an advanced level.
- 253. Field Instruction IV: Individuals, Families and Groups (4-5)**
Prerequisites: Social Work 252 and concurrent registration in Social Work 233.
Continuation of Field Instruction III at an advanced level. Emphasis is placed on the use of diverse problem-solving strategies and resources in social work.
- 255. Field Instruction V: Organizations and Communities (4-5)**
Prerequisites: Social Work 251 and concurrent registration in Social Work 234.
Field instruction in a social work setting providing a concentration on social

work practice aimed at achieving changes in social policies, organizations, and communities. Practice under educational direction at an advanced level.

256. Field Instruction VI: Organizations and Communities (4-5)

Prerequisites: Social Work 255 and concurrent registration in Social Work 235. Continuation of Field Instruction V at an advanced level. Emphasis is placed on the use of diverse social work strategies and resources in social planning or community development.

270. Seminar. Social Work Analysis (1-4)

Discussion of student experience in field instruction and its broader implications. Maximum credit four units applicable on a master's degree.

271. Seminar. Current Social Issues (1-4)

Prerequisite: Advancement to candidacy or consent of Dean. Current developments and issues in contemporary society and their meaning for social work practice. Maximum credit four units applicable on a master's degree.

290A-290B. Social Work Research Methods and Analysis (2-2)

Definition and purpose of research in social work. Techniques and methods used in collecting, organizing, and interpreting social welfare and related data; steps involved in planning a research project and selecting a research design.

291. Seminar (2-3)

Selected topics in social work and/or social welfare. Topics to be announced in the class schedule. Maximum credit six units applicable on a master's degree.

297A-297B. Research (2-2)

Prerequisite: Social Work 290. Research in the field of social work and completion of a research project. Individual or group project.

298. Special Study (1-3)

Prerequisite: Consent of staff; to be arranged with Dean and instructor. Individual study. Six units maximum credit.

SOCIOLOGY

GENERAL INFORMATION

The Department of Sociology, in the College of Arts and Letters, offers graduate work leading to the Master of Arts degree in Sociology. For graduate work in connection with the Master of Arts degree in Social Science, refer to the section of this bulletin under Social Science. Research facilities provided by the Department of Sociology include a well-equipped Social Research Center for use by the faculty and graduate students.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. In addition, students seeking the Master of Arts degree in Sociology must have completed 18 upper division units in sociology including Sociology 101, Modern Social Theory, Sociology 140, Social-Psychological Foundations of Society, and one course from each of the following fields: (1) Social Disorganization; (2) Social Institutions or Social Organization; and (3) Urban Sociology-Demography.

ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy as described in Part Three of this bulletin. Students majoring in sociology must also have completed Sociology 164, Methods of Social Research, either at the undergraduate or graduate level.

SPECIFIC REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree, as described in Part Three of this bulletin, the student must include in his graduate program a minimum of 24 units from courses in sociology listed below as acceptable on master's degree programs, of which at least 15 units must be in 200-numbered courses including Sociology 299. Thesis. A final comprehensive examination also required.

ASSISTANTSHIPS

Graduate teaching assistantships and graduate non-teaching assistantships in Sociology are available to a limited number of qualified students. Application blanks and further information may be obtained from the Chairman of the Department.

FACULTY

Chairman, Department of Sociology: T. L. Gillette, Ph.D.
Graduate Adviser: M. J. Daniels
Professors: M. J. Daniels, Ph.D.; J. R. DeLora, Ph.D.; T. L. Gillette, Ph.D.; C. Dale Johnson, Ph.D.; B. C. Kirby, Ph.D.; O. E. Klapp, Ph.D.; D. S. Milne, Ph.D.; N. N. Mouratides, Ph.D.; Aubrey Wendling, Ph.D.
Associate Professors: M. M. El-Assal, Ph.D.; Shelly E. Chandler, Ph.D.; R. W. Winslow, Ph.D.
Assistant Professors: Cornelia Baldock, Ph.D.; R. E. Buck, Ph.D.; Ann W. Cottrell, Ph.D.; Joann S. DeLora, Ph.D.; C. E. Drake, Ph.D.; Robert Emerick, B.A.; W. C. Kennedy, Ph.D.; H. J. Lally, Ph.D.; Dennis Scheck, Ph.D.; R. H. Schulze, Ph.D.; J. S. Stephenson, M.A.; Joan T. Werner, D.S.S.

**COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS
IN SOCIOLOGY**

UPPER DIVISION COURSES

- | | |
|---------------------------------------------------|--------------------------------------------------|
| 100. History of Social Thought (3) | 137. Political Sociology (3) |
| 103. Contemporary Sociological Theory (3) | 138. Sociology of Religion (3) |
| 110. Social Disorganization (3) | 139. Sociology of Education (3) |
| 111. Current Social Issues (3) | 145. Sociology of Mass Communication (3) |
| 112. Sociology of Conflict (3) | 146. Collective Behavior (3) |
| 113. Criminology and Penology (3) | 147. Sociology of Social Movements (3) |
| 114. Juvenile Delinquency (3) | 148. Small Groups (3) |
| 120. Industrial Sociology (3) | 150. Population Problems (3) |
| 121. Sociology of Occupations and Professions (3) | 151. Research Methods in Demography (3) |
| 123. Sociology of Mental Illness (3) | 157. Urban Sociology (3) |
| 124. Social Stratification (3) | 160. Quantitative Methods in Social Research (3) |
| 125. Minority Group Relations (3) | 164. Methods of Social Research (3) |
| 126. Medical Sociology (3) | 197. Investigation and Report (3) |
| 132. Formal Organization (3) | |
| 136. Sociology of the Family (3) | |

GRADUATE COURSES

200. **Seminar in Social Theory (3)**
Prerequisites: Sociology 101 and 164.
Classics of sociology, American social theory, theory construction, application of theory to research, theoretical models, sociology of knowledge, special topics. See class schedule for specific content. Maximum credit six units applicable to a master's degree.
205. **Directed Readings in Social Theory (3)**
Prerequisites: Sociology 101 and 164.
Selected readings providing comprehensive coverage of the field of social theory.
210. **Seminar in Social Disorganization (3)**
Prerequisites: Sociology 110 and 164.
Theories of social disorganization, anomie and alienation, deviance, crime, delinquency, personal pathology, institutional malfunction, social conflict, disaster, special topics. See class schedule for specific content. Maximum credit six units applicable to a master's degree.
215. **Directed Readings in Social Disorganization (3)**
Prerequisites: Sociology 110 and 164.
Selected readings providing comprehensive coverage of the field of social disorganization.
220. **Seminar in Social Organization (3)**
Prerequisites: Sociology 122 and 164.
Social groups, formal organization, organizational change, authority and leadership, special topics. See class schedule for specific content. Maximum credit six units applicable to a master's degree.
225. **Directed Readings in Social Organization (3)**
Prerequisites: Sociology 122 and 164.
Selected readings providing comprehensive coverage of the field of social organization.
230. **Seminar in Social Institutions (3)**
Prerequisites: Sociology 122 and 164.
The family and kinship, political organization, economic organization, religion, education, industry, occupations and professions, social stratification, special topics. See class schedule for specific content. Maximum credit six units applicable to a master's degree.
235. **Directed Readings in Social Institutions (3)**
Prerequisites: Sociology 122 and 164.
Selected readings providing comprehensive coverage of the field of social institutions.

240. **Seminar in Social Psychology: Sociological Approaches (3)**

Prerequisites: Sociology 140 and 164.
Socialization, role theory, motivation, perception, self, social context of personality, attitude theory, interaction, language and symbolic process, social types, collective behavior, small groups, special topics. See class schedule for specific content. Maximum credit six units applicable to a master's degree.

245. **Directed Readings in Social Psychology: Sociological Approaches (3)**

Prerequisites: Sociology 140 and 164.
Selected readings providing comprehensive coverage of the field of social psychology.

250. **Seminar in the Community (3)**

Prerequisites: Sociology 157 and 164.
Ecological structure and process; community institutions and structure; community deterioration, planning and renewal; urbanization; suburbia; megalopolis; special topics. See class schedule for specific content. Maximum credit six units applicable on a master's degree.

255. **Directed Readings in the Community (3)**

Prerequisites: Sociology 157 and 164.
Selected readings providing comprehensive coverage of the sociological study of human communities.

260. **Seminar in Research Methods (3)**

Prerequisites: Sociology 101 and 164.
Analysis of methods used in current sociological research, including evaluation of reported findings. Discussion of research designs appropriate to particular types of projects. Evaluation of research in progress by members of the seminar. May be repeated with new content for additional credit. Six units maximum credit applicable on a master's degree.

265. **Directed Readings in Research Methods (3)**

Prerequisite: Sociology 164.
Selected readings providing comprehensive coverage of sociological research methods.

270. **Seminar in Population and Demography (3)**

Prerequisites: Sociology 164 and 150 or 151.
Demographic theories, fertility, mortality, migration, construction and application of demographic indices, demographic prediction, world population trends, special topics. See class schedule for specific content. Maximum credit six units applicable on a master's degree.

275. **Directed Readings in Population and Demography (3)**

Prerequisites: Sociology 164 and 150 or 151.
Selected readings providing comprehensive coverage of the fields of population and demography.

290. **Bibliography (1)**

Exercises in the use of basic reference books, journals, and specialized bibliographies, preparatory to the writing of a master's project or thesis.

297. **Research (3)**

Prerequisite: Sociology 164.
Independent investigation of special topics.

298. **Special Study (1-3)**

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.

299. **Thesis (3)**

Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

SPANISH

GENERAL INFORMATION

The Department of Spanish and Portuguese, in the College of Arts and Letters, offers graduate study leading to the Master of Arts degree in Spanish. The staff in charge of the graduate program in Spanish is composed of professors whose native tongue is Spanish, or who have studied and traveled extensively in Spain or in Spanish America, enabling them to represent authoritatively the Spanish language and culture. Library facilities include rich resources in Spanish literature and linguistics, including books, periodicals and newspapers. A foreign language laboratory with modern equipment is available to both graduate and undergraduate students.

ADMISSION TO THE GRADUATE DIVISION

All students must satisfy the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin. An undergraduate major in Spanish, including 24 upper division units, must have been completed, at least six units of which must have been in a survey course in Spanish literature.

ADVANCEMENT TO CANDIDACY

In addition to meeting the requirements for advancement to candidacy as described in Part Three of this bulletin, students may be required to pass a qualifying examination in Spanish given by the Department of Spanish and Portuguese.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program of at least 30 units which includes a major consisting of at least 24 units in Spanish of which at least 18 units must be in 200-numbered courses, including Spanish 290 and either Spanish 299 in Plan A programs, or Spanish 294 in Plan B programs. Students who plan to earn a standard teaching credential as well as the master's degree in Spanish will normally follow Plan B, which includes the passing of a comprehensive examination in lieu of the thesis.

ASSISTANTSHIPS

Graduate teaching assistantships in Spanish are available to a limited number of qualified students. Application blanks and additional information may be secured from the Chairman of the Department.

FACULTY

Chairman, Department of Spanish and Portuguese: J. L. Walsh, Ph.D.
Graduate Advisers: C. H. Baker (Coordinator), George Lemus, J. L. Walsh
Credentialed Adviser: C. H. Baker
Professors: C. H. Baker, Ph.D.; T. E. Case, Ph.D.; George Lemus, Ph.D.
Associate Professors: G. L. Head, Ph.D.; Florence H. Sender, M.A.; J. L. Walsh, Ph.D.; R. D. Weeter, Ph.D.; Florence I. Williams, Ph.D.
Assistant Professors: C. B. Christensen, Ph.D.; Joaquin Santaló, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN SPANISH

UPPER DIVISION COURSES

Spanish

- | | |
|-----------------------------------------------------------|-------------------------------------------|
| 104A-104B. Spanish-American Literature (3-3) | 112. Contemporary Spanish Novel (3) |
| 105A-105B. Modern Spanish Drama (3-3) | 130. Poetry of the Spanish Golden Age (3) |
| 106A-106B. Mexican Literature (3-3) | 131. Prose of the Spanish Golden Age (3) |
| 107. Caribbean Area Countries Literature (3) | 132. Drama of the Spanish Golden Age (3) |
| 108. Andean Countries Literature (3) | 149. Spanish Linguistics (3) |
| 109. River Plate Literature (3) | 150. Phonetics and Phonemics (3) |
| 110. Nineteenth-Century Spanish Novel and Short Story (3) | 170. Spanish-American Poetry (3) |
| 111. Twentieth-Century Spanish Novel and Short Story (3) | 171. Spanish-American Short Story (3) |
| | 172. Spanish-American Theatre (3) |
| | 180. Modern Spanish Poetry (3) |

Portuguese

- | | |
|--------------------------------|-------------------------------|
| 134. Portuguese Literature (3) | 135. Brazilian Literature (3) |
|--------------------------------|-------------------------------|

Related Fields: Related courses in the fields of anthropology, geography, history, political science, comparative literature, and others, may be selected with the approval of the graduate adviser.

GRADUATE COURSES

All graduate courses in the Department of Spanish and Portuguese have a prerequisite of 12 units of upper division courses in Spanish, or consent of instructor.

201. History of the Spanish Language (3)
Prerequisite: Credit or concurrent enrollment in Spanish 149 or 150.
The development of the Spanish language in Spain and Spanish America, with particular attention to the phonology, morphology, and syntax of medieval Spanish.
202. Cervantes (3)
The principal prose works of Cervantes: The *Novelas ejemplares* and *Don Quixote*.
203. Lope de Vega and Calderon (3)
The works of Lope de Vega and Calderon.
204. The Spanish-American Novel (3)
The Spanish-American novel to 1935.
205. The Gaucho Epic (3)
The *Poesía gauchesca*, with particular emphasis on *Martín Fierro*, *Fausto*, and *Santos Vega*. (Formerly entitled: Spanish-American Poetry.)
206. Modernism (3)
The *Modernista* movement in Spanish America, with special attention to representative poets.
207. Medieval Spanish Literature (3)
Prerequisite: Spanish 201.
The literature of Spain from the earliest extant works to the *Celestina*.
208. The Modern Spanish Essay (3)
The thinkers, essayists, and philosophers of Spain from the generation of 1898 to the present.
209. The Spanish-American Essay (3)
Principal Spanish-American essayists of the 19th and 20th centuries.

210. **Contemporary Spanish-American Prose Fiction (3)**
The principal writers of prose fiction in Spanish America from the mid-thirties to today.
220. **Seminar in Spanish Golden Age Literature (3)**
A representative author, a genre or movement of the Spanish Golden Age. Maximum credit six units applicable on a master's degree.
230. **Seminar in 19th Century Spanish Literature (3)**
A representative author, a genre or movement of the 19th century in Spain. Maximum credit six units applicable on a master's degree.
240. **Seminar in 20th Century Spanish Literature (3)**
A representative author, a genre or movement of the 20th century in Spain. Maximum credit six units applicable on a master's degree.
250. **Seminar in Spanish-American Literature (3)**
A genre or movement of Spanish America. Maximum credit six units applicable on a master's degree.
255. **Seminar in Spanish-American Culture and Thought (3)**
Works of representative authors of Spanish America. Maximum credit six units applicable on a master's degree.
260. **Seminar in Medieval Spanish Literature (3)**
A representative author of the medieval period. Maximum credit six units applicable on a master's degree.
270. **Applied Spanish Linguistics for Teachers (3)**
Prerequisite: Spanish 149 or 150.
The application of linguistic theory to the teaching of Spanish at the secondary and college levels.
290. **Research and Bibliography (3)**
Purposes and methods of research in the fields of the language and literature, the collection and collation of bibliographic material, and the proper presentation of the results of such investigation. Recommended for the first semester of graduate work.
294. **Comprehensive Reading and Survey Course (3)**
Prerequisite: Consent of graduate adviser and department chairman.
A study of important movements, authors, and works in Spanish literature. Designed to supplement the reading done in previous courses, in preparation for the comprehensive examination in literature for candidates for the Master of Arts degree.
298. **Special Study (1-3)**
Prerequisite: Consent of staff, to be arranged with department chairman and instructor.
Individual study. Six units maximum credit.
299. **Thesis (3)**
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

SPEECH COMMUNICATION

GENERAL INFORMATION

The Department of Speech Communication, in the College of Professional Studies, offers graduate study leading to the Master of Arts degree in Speech. The department offers advanced study in the areas of public address, communication, and interpretation.

ADMISSION TO THE GRADUATE DIVISION

In addition to the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin, the student will be required to complete the departmental diagnostic examination during his first semester of graduate enrollment in the department.

ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, which are described in Part Three of this bulletin. In addition, students seeking the Master of Arts degree in Speech are required to have attained classified graduate standing and to have completed Speech Communication 200.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE IN SPEECH

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes at least 24 units from courses listed below as acceptable on master's degree programs in speech of which at least 18 units must be in 200-numbered courses. Speech Communication 200, Research and Bibliography, and Speech Communication 299, Thesis, are required courses.

ASSISTANTSHIPS

Graduate teaching assistantships in Speech Communication are available to a limited number of qualified students. Application blanks and further information may be obtained from the Department Chairman.

FACULTY

Chairman, Department of Speech Communication: Jack Mills, Ph.D.
Graduate Adviser: F. C. Sanders
Professors: W. J. Adams, Ph.D.; R. L. Benjamin, Ph.D.; Jack Mills, Ph.D.; L. A. Samovar, Ph.D.
Assistant Professors: R. M. Babich, M.A.; F. C. Sanders, M.A.; C. R. Smith, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN SPEECH

UPPER DIVISION COURSES

- | | |
|-----------------------------------------------------------|----------------------------------------------------|
| <i>Speech Communication</i> | |
| 108. Advanced Interpretation (3) | 189. Ethics of Speech Communication (3) |
| 130. Semantics (3) | 191. Group Communication (3) |
| 135. Theories of Human Communication (3) | 192A. Advanced Public Speaking (3) |
| 152. Rhetorical Theory and Criticism 400 A.D. to 1900 (3) | 192B. Oral Persuasion (3) |
| 154. Contemporary Rhetorical Theory and Criticism (3) | 193. Mass Persuasion (3) |
| 162. Advanced Argumentation (3) | 194. History of Public Address (3) |
| | 198. Selected Topics in Speech Communication (3) # |

Not more than three units of Speech Communication 198 are acceptable on master's degree programs in Speech.

GRADUATE COURSES

Speech Communication

200. **Research and Bibliography (3)**
Basic reference works, scholarly and critical journals; introduction to bibliographical techniques; exercises and problems in methods and exposition of research as it relates to speech communication. Recommended for first semester of graduate work, and prerequisite to advancement to candidacy.
208. **Seminar in Oral Interpretation (3)**
Prerequisite: Speech Communication 108.
Aesthetic discipline applied to oral interpretation of various forms of literature. Analysis of thought and emotional content, and aesthetic form. Investigation of advanced problems of delivery. May be repeated with new content for maximum of six units. (Formerly numbered Speech Arts 208.)
230. **Seminar in the Analysis of Language (3)**
Prerequisite: Speech Communication 130.
Special problems in language theory which may be integrated into the larger bodies of rhetorical and communication theory.
235. **Seminar in Communication Theory (3)**
Prerequisite: Speech Communication 135.
Theories of communication; communication models, codes, perception and effects. (Formerly numbered Speech Arts 235.)
250. **Seminar in Rhetorical Theory (3)**
Leading figures in rhetorical theory from Plato to contemporary theorists. Special attention given to the application of theory to public address.
251. **Seminar in Rhetorical Criticism (3)**
Major systems of speech criticism. Special attention to measuring the effectiveness of a given piece of discourse in terms of actuality and potentiality.
262. **Seminar in Argumentation (3)**
Prerequisite: Speech Communication 162.
Significant topics in argumentation: the formulation of problems for argument; analysis; the brief with patterns of argument, traditional and recent; presumption; probability; laws of evidence; fallacies. (Formerly numbered Speech Arts 262.)
280. **Seminar in Public Address, 1600-1850 (3)**
Examination of the problems confronting American speakers and the solutions they offered. Special emphasis placed on the rhetorical means used to solve major crises in American history.
281. **Seminar in American Public Address, 1850 to Present (3)**
Examination of the problems confronting American speakers and the solutions they offered. Special emphasis placed on the rhetorical means used to solve major crises in American history.
282. **Seminar: Contemporary American Public Address (3)**
Prerequisites: Speech Communication 190 and 192A or 192B. (Formerly numbered Speech Arts 297.)
290. **Experimental Procedures in Speech Communication (3)**
Prerequisite: Credit or concurrent registration in Speech Communication 200.
Examination and evaluation of appropriate experimental procedures and traditional methods; special problems in research design. (Formerly numbered Speech Arts 290.)
291. **Seminar in Group Discussion Theory (3)**
Prerequisite: Speech Communication 191.
A study of descriptive and experimental literature on group discussion covering such topics as interaction, leadership, and means of evaluation. (Formerly numbered Speech Arts 291.)
293. **Seminar: Greek and Roman Public Address (3)**
Prerequisites: Speech Communication 190 and 192A or 192B. (Formerly numbered Speech Arts 293.)
294. **Seminar: 18th Century British Public Address (3)**
Prerequisites: Speech Communication 190 and 192A or 192B. (Formerly numbered Speech Arts 294.)
298. **Special Study (1-3)**
Individual Study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.
299. **Thesis or Project (3)**
Prerequisite: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

SPEECH PATHOLOGY AND AUDIOLOGY

GENERAL INFORMATION

The Department of Speech Pathology and Audiology, in the College of Professional Studies, offers graduate study leading to the Master of Arts degree in Speech Pathology and Audiology, to the Restricted Credential Authorizing Service as a Speech and Hearing Specialist (Plan II), and to the Standard Credential to teach the Deaf. The department offers advanced study in speech and hearing science, speech pathology and audiology. The programs utilize the facilities of the Speech and Hearing Clinic in the Clinical Training Center in the Education Building, offering observation and diagnostic and therapeutic experience with outpatient children and adults. Field experience is offered in the public schools and the San Diego Speech and Hearing Center, Children's Hospital. Additional opportunities for practicum and observation experiences include the Sunshine School (cerebral palsy), the Home of Guiding Hands (mental retardation), Lafayette and Hawthorne schools (deaf and severely hard of hearing), the Head Start programs (disadvantaged), and the University of California Medical School.

ADMISSION TO THE GRADUATE DIVISION

In addition to the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin, the student will be required to complete the departmental diagnostic examination during his first semester of graduate enrollment in the department. The examination is administered each semester on the first Saturday following the beginning of classes.

ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, which are described in Part Three of this bulletin. In addition, students seeking the Master of Arts degree in Speech Pathology and Audiology are required to have attained classified graduate standing and to have completed Speech Pathology and Audiology 200.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes at least 24 units from courses listed below as acceptable on master's degree programs in speech arts of which at least 15 units must be in 200-numbered courses. Speech Pathology 200, Research and Bibliography, and Speech Pathology 299, Thesis, are required courses.

FACULTY

Chairman, Department of Speech Pathology and Audiology: Sue W. Earnest, Ph.D.

Graduate Adviser: A. C. Nichols

Credential Adviser: Speech and Hearing Specialist, Plan II: Sue W. Earnest

Credential Adviser: Deaf: Harriet G. Kopp

Professors: Sue W. Earnest, Ph.D.; Harriett G. Kopp, Ph.D.; P. L. Pfaff, Ph.D.; R. M. Riedman, Ph.D.

Associate Professors: A. C. Nichols, Ph.D.; E. L. Thile, Ph.D.

Assistant Professors: Marcia L. Harris, Ph.D.; K. D. Dimmick, Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN SPEECH PATHOLOGY AND AUDIOLOGY

UPPER DIVISION COURSES

- | | |
|---------------------------------------------------|----------------------------------------------------------------|
| 127. Diagnostic Methods in Speech Pathology (3) | 150. Education of Deaf Children (3) |
| 128. Diagnostic Practicum in Speech Pathology (3) | 151. Speech Reading and Auditory Training (3) |
| 132. Assessment of Language Disorders (3) | 154. Physiological Phonetics (3) |
| 143. Hearing Amplification (3) | 198. Selected Topics in Speech Pathology and Audiology (1-3) # |

Not more than three units of Speech Pathology and Audiology 198 are acceptable on master's degree programs in Speech Pathology and Audiology.

GRADUATE COURSES

200. Research and Bibliography (3)
Bibliographical techniques in methods and exposition of research in the fields of Speech Pathology and Audiology. Recommended for the first semester of graduate work, and prerequisite to advancement to candidacy.

201. Voice Science (3)

Prerequisites: Speech Pathology and Audiology 203.

Relationship of basic principles of sound to the speech mechanism. Analysis of speech sound production. Application of mechanical and electronic equipment to speech. (Formerly numbered Speech Arts 276.)

202. Problems of Aphasia (3)

Prerequisites: Speech Pathology and Audiology 121, 123, and 125.

Principles of evaluation of aphasia, familiarity with diagnostic tools, theories of aphasia and therapy for persons with disorders of symbolization: i.e. adult and congenital aphasia. Evaluation of current research in aphasia studies. (Formerly numbered Speech Arts 271.)

203. Problems of Cerebral Palsy (3)

Prerequisites: Speech Pathology and Audiology 121, 123, and 124.

Principles of evaluation, theories of treatment and therapy for persons with speech disorders in cerebral palsy. Evaluation of current research in cerebral palsy. (Formerly numbered Speech Arts 272.)

204. Problems of Cleft Palate (3)

Prerequisites: Speech Pathology and Audiology 121, 123, and 124.

Principles of diagnosis and therapy for persons with cleft palate speech problems. Evaluation of current research in this area. (Formerly numbered Speech Arts 273.)

205. Problems of Stuttering (3)

Prerequisites: Speech Pathology and Audiology 121, 122, and 125.

Principles of evaluation of theories, individual and group therapy for child and adult stutterer; evaluation of current research in this area. (Formerly numbered Speech Arts 274.)

206. Problems of Voice Pathology (3)

Prerequisites: Speech Pathology and Audiology 121, 123, 124, and 125.

Structural and functional voice problems. Diagnosis, theories and therapy for vocal problems. Evaluation of current research. (Formerly numbered Speech Arts 275.)

226. Advanced Clinical Practice in Speech Pathology (1-2)

Prerequisite: Speech Pathology and Audiology 126.

Supervised therapy with speech disorders such as stuttering, aphasia, and laryngectomies. Maximum credit four units of Speech Pathology and Audiology 226 and 245 applicable on a master's degree. (Formerly numbered and entitled: Speech Arts 280A, Advanced Field Work in Clinical Practice in Speech Pathology.)

228. Advanced Diagnostic Methods in Speech Therapy (3)

Prerequisites: Speech Pathology and Audiology 126, 127, and 128.
Diagnosis of individuals with complicated speech problems as brain injury, congenital aphasia, adult aphasia, cerebral palsy, hearing loss, laryngectomy, mental retardation, stuttering and voice problems. (Formerly numbered Speech Arts 279.)

240. Medical Audiology (3)

Prerequisites: Speech Pathology and Audiology 145 and 244.
Problems of diagnosis, referral and report writing. Testing in a medical setting and medically significant hearing pathologies. (Formerly numbered Speech Arts 278.)

244. Audiology (3)

Prerequisite: Speech Pathology and Audiology 141.
Psychophysical concepts underlying clinical audiology. Relationship of audiologic test results to the conditions under which they were obtained. (Formerly numbered Speech Arts 177.)

245. Advanced Clinical Practice in Audiologic Assessment (1-2)

Prerequisites: Speech Pathology and Audiology 140 and 244.
Advanced casework in hearing evaluation. Maximum credit four units. Maximum credit four units of Speech Pathology and Audiology 226 and 245 applicable on a master's degree.

246. Advanced Clinical Practice with Hard of Hearing (1-2)

Prerequisite: Speech Pathology and Audiology 141.
Supervised practice with problem hearing cases. Maximum credit four units of Speech Pathology and Audiology 226, 245, and 246 applicable on a master's degree.

249. Seminar in Audiology (3)

Prerequisite: Speech Pathology and Audiology 244.
Major research in clinical audiology. Audiologic techniques used in differential diagnosis. Maximum credit six units applicable on a master's degree. (Formerly numbered Speech Pathology and Audiology 250.)

256. Advanced Field Work with the Deaf (1-3)

Prerequisites: Speech Pathology and Audiology 151, 152, 153.
Supervised clinic practicum at an advanced level with representative deaf cases. Maximum credit six units of Speech Pathology and Audiology 256 and 257 applicable on a master's degree.

257. Differential Diagnosis of the Hearing Impaired (3)

Prerequisite: Speech Pathology and Audiology 6, 150, 151, or 127.
Diagnosis of multiply-handicapped, hearing impaired children, including clinical teaching; assessment methods; materials and equipment; prognosis; current philosophies and trends. Maximum credit six units of Speech Pathology and Audiology 256 and 257 applicable on a master's degree.

298. Special Study (1-3)

Individual study. Six units maximum credit.
Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of a project or thesis for the master's degree.

TELECOMMUNICATIONS AND FILM

GENERAL INFORMATION

The Department of Telecommunications and Film, in the College of Professional Studies, offers graduate study leading to the Master of Arts degree in Radio and Television. This degree permits advanced study in the areas of public television producing and directing, telecommunications management, instructional telecommunications, and film production and direction. In addition, the department participates in the Master of Science degree in Mass Communications (see separate listing). Facilities now in use include a two-studio television production center, a five-control room, a three-studio radio complex, and a film production center. The Department of Telecommunications and Film participates in the operation of KPBS-TV/FM, operates a television production center for the origination and syndication of public television programs, and maintains the San Diego State closed-circuit instructional television production and origination facility. The entire operation provides telecommunications and film experience for all students in the curriculum.

ADMISSION TO THE GRADUATE DIVISION

In addition to the general requirements for admission to the Graduate Division with classified graduate standing, as described in Part Three of this bulletin, the student will be required to complete the departmental diagnostic examination during his first semester of graduate enrollment in the department. The examination is administered each semester on the first Saturday following the beginning of classes.

ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, which are described in Part Three of this bulletin. In addition, students seeking the Master of Arts degree in Radio and Television are required to have attained classified graduate standing and to have completed Telecommunications and Film 200.

SPECIFIC REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as described in Part Three of this bulletin, the student must complete a graduate program which includes at least 24 units from courses listed below as acceptable on master's degree programs in radio and television of which at least 15 units must be in 200-numbered courses. Telecommunications and Film 200, Research and Bibliography, and Telecommunications and Film 299, Thesis, are required courses.

ASSISTANTSHIPS

Graduate teaching assistantships in Telecommunications and Film are available to a limited number of qualified students. Application blanks and further information may be obtained from the Department Chairman.

FACULTY

Chairman, Department of Telecommunications and Film: R. E. Lee, M.A.
Graduate Adviser: D. G. Wylie
Professors: K. K. Jones, M.A.; R. E. Lee, M.A.
Associate Professors: K. C. Jameson, M.A.; R. P. Madsen, Ph.D.; D. G. Wylie, Ph.D.
Assistant Professors: Hayes Anderson, M.A.; K. C. Jameson, M.A.; Elizabeth Johnson, M.S.; J. S. Johnson, Ph.D.; D. R. Martin, Ph.D.; Thomas Meador, M.A.

**COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS
IN RADIO AND TELEVISION**

UPPER DIVISION COURSES

Telecommunications and Film

- | | |
|----------------------------------------------------------------|--------------------------------------------------------------|
| 101. Broadcast Management (3) | 162. Film Techniques (3) |
| 103. Broadcast Advertising (3) | 163. International Cinema (3) |
| 104. Broadcast Commercial Practices (3) | 165. Animated Film Techniques (3) |
| 105. Regulation of Broadcasting (3) | 168. Film Production (4) |
| 108. International Broadcasting (3) | 170. Educational Broadcasting (3) |
| 110. Writing and Producing for Broadcasting and Film (3) | 180. Directing Television and Film Drama (3) |
| 130. Radio Programming (3) | 181. Acting for TV and Film (3) |
| 150. Lighting for Television and Film (3) | 183. Advanced Programming and Development for Television (4) |
| 156. Advanced Lighting and Staging for Television and Film (4) | 184. Advanced Television Directing (4) |
| | 198. Selected Topics in Telecommunications and Film (3) # |

Not more than three units in Telecommunications and Film 198 are acceptable on master's degree in Radio and Television.

GRADUATE COURSES

Telecommunications and Film

- 200. Research and Bibliography (3)**
Basic reference works, scholarly and critical journals; Bibliographical techniques; exercises and problems in methods and exposition of research as it relates to the various areas of speech. Recommended for first semester of graduate work, and prerequisite to advancement to candidacy.
- 201. Seminar in Broadcast Management (3)**
Prerequisite: The equivalent of an undergraduate major in telecommunications and film.
The legal and regulatory milieu of broadcasting from the perspective of station management. (Formerly numbered Speech Arts 283.)
- 202. Seminar in Broadcast Advertising Problems (3)**
Prerequisite: The equivalent of an undergraduate major in broadcasting.
Analysis of the social, economic and cultural context of advertising in commercial broadcasting; criticism and evaluation of the function of the advertiser; survey of broadcast advertising theory and research.
- 203. Seminar in History of Broadcasting (3)**
Prerequisite: The equivalent of an undergraduate major in Telecommunications and Film.
The development of broadcasting in its social, legislative, and economic settings, with emphasis upon broadcasting in the U.S. (Formerly numbered Speech Arts 282.)
- 205. Mass Communications Research (3)**
Prerequisite: Telecommunications and Film 200.
Design and execution of a media research project; audience and message analysis; experimental design and survey research methodology. (Formerly numbered and entitled Speech Arts 281, Survey Research in Broadcasting.)
- 210. Seminar in Writing for Broadcast and Film (3)**
Prerequisites: Telecommunications and Film 110, 162, and 163.
Dramatic structures as they apply to broadcasting and cinema. Writing a full-length script or scenaria. (Formerly numbered Speech Arts 286.)

212. Criticism of Broadcasting and Cinema (3)

Prerequisites: The equivalent of an undergraduate major in telecommunications and film.

Standards for objective appraisal of the ethical and artistic aspects of radio, television, and film programs. (Formerly numbered Speech Arts 287.)

268. Directing the Dramatic Film (3)

Prerequisites: Telecommunications and Film 168, 180 and consent of instructor.

Analysis of techniques and stylistic contributions of major directors as seen in their films. Production of a short dramatic film embodying concepts so learned. (Formerly numbered Speech Arts 268.)

270. Seminar in Educational Broadcasting (3)

Prerequisite: The equivalent of an undergraduate major in telecommunications and film.

Educational uses of electronic media. Use of telecommunications in classrooms and school systems. Relationship of noncommercial radio and television (Public Broadcasting) to commercial broadcast media and education. Formerly numbered Speech Arts 285.)

272. Seminar in Mass Communication Theory (3)

Prerequisite: Speech Communication 135.

Analysis of theoretical models of mass communication. Application of operational models for the diffusion of information, and the adoption of innovation, to problems in the mass media. (Formerly numbered Speech Arts 288.)

273. Mass Communications Message Design (3)

Prerequisite: Speech Communication 135.

Selection and organization of message design elements in the mass communications media. Analysis of different effects of various types of mass communications formats, presentations, and systems on individuals and groups.

284. Seminar in Programing and Production (3)

Prerequisite: The equivalent of an undergraduate major in telecommunications and film.

Theory and analysis of programing and production of broadcasting. (Formerly numbered Speech Arts 284.)

298. Special Study (1-3)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

299. Thesis or Project (3)

Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Preparation of a project or thesis for the master's degree.

GRADUATE COURSES

LIBRARY SCIENCE

- 225. Bibliography of the Humanities (2)**
Prerequisite: Library Science 110.
Survey and evaluation of bibliographical and reference materials in the humanities, with training and practice in their use in solving questions arising in reference service.
- 226. Bibliography of the Social Sciences (2)**
Prerequisite: Library Science 110.
Survey and evaluation of bibliographical and reference materials in the subject fields of the social sciences, with study of typical problems arising in reference service in these subjects.
- 227. Bibliography of the Sciences (2)**
Prerequisite: Library Science 110.
Survey and evaluation of representative reference sources in the pure and applied sciences. Study of typical problems encountered in providing and servicing scientific reference materials.
- 231. Literature for Children (3)**
Prerequisite: Library Science 118.
Survey and evaluation of literature and other library materials particularly suited to the use of the elementary school student. A critical study of standard, classic, and current books for children, together with aids and criteria for selection.
- 232. Literature for Adolescents (3)**
Prerequisite: Library Science 118.
Survey and evaluation of literature and other library materials particularly suited to the use of the high school student. A critical study of standard, classic, and current books for the adolescent, together with aids and criteria for selection.

RECREATION

- 204. Problems in Recreation (3) (Alternate years)**
(Same course as Physical Education 204)
A survey of current problems facing the recreation profession, a review of literature, discussion of trends and observation of school situations together with the analysis and evaluation of actual problems. Written reports are required.
- 205. Park Management (3) (Alternate years)**
Prerequisite: Recreation 165.
Fundamentals of general park maintenance. Principles of planning and development. Personnel and budget problems unique to park management. Coordination of activities with other public agencies.
- 260. Recreation Administration and Supervision (3) (Alternate years)**
Prerequisites: Recreation 165 and 184.
Methods, techniques and evaluation systems used by chief administrators, department heads and supervisors in both public and private agencies.
- 261. Seminar in Specialized Facilities (3)**
Prerequisite: Recreation 175.
Management methods in planning, developing and operating specialized recreation facilities such as golf courses, zoos and aquaria, botanical gardens and arboreta, beaches and marinas, centers for the handicapped, sports stadia, and others. May be repeated once in a different area of specialization.

INDEX

- Academic Calendar, 5
Academic Year, 22
Accounting (See Business Administration)
Accreditation, 20
Administration and Supervision (See Education)
Administration, San Diego State, 17-19
Admission
To San Diego State, 33, 35
To the Graduate Division, 37
To graduate curricula (See appropriate discipline)
Advancement to Candidacy, 38, 44
Aerospace Engineering (See Engineering)
American Studies
Courses, 51, 52
Faculty, 50
Requirements for M.A., 50
Anthropology
Courses, 54-56
Faculty, 53
Requirements for M.A., 53
Applications
For admission to the Graduate Division, 37
For admission to the joint doctoral programs, 68, 71, 93
For admission to San Diego State, 33
For graduation, 43
Art
Courses, 59, 60
Faculty, 58
Requirements for M.A., 57
Asian Studies
Courses, 62, 63
Faculty, 62
Requirements for M.A., 61
Assistantships, 29
Astronomy
Courses, 65, 66
Faculty, 65
Requirements for M.S., 64
Auditors, 42
Award of degrees, 47
Biological Sciences
Courses in Biology, Botany, Microbiology and Zoology, 75-81
Faculty, 74
Requirements for M.A., 68
Requirements for M.S., 68
Requirements for Ph.D. in Ecology, 68-70
Requirements for Ph.D., in Genetics, 71-73
Botany (See Biological Sciences)
Business Administration
Courses, 86-91
Faculty, 85
Requirements for M.B.A., 83
Requirements for M.S., 84
Calendar
Semester I, 5, 6
Semester II, 6, 7
Summer Sessions, 5, 7
California State Colleges
Board of Trustees, 11
Colleges, 13, 14
Office of the Chancellor, 13
Officers of the Board of Trustees, 12
Candidacy for degree, 38, 44
Career Planning and Placement Center, 23
Catalogs and Bulletins, 22
Changes in class schedule, 36
Chemistry
Courses, 96-98
Faculty, 96
Requirements for M.A., 92
Requirements for M.S., 92
Requirements for Ph.D., 93-95
City Planning (See Public Administration and Urban Studies)
Civil Engineering (See Engineering)
Classified graduate standing, 37, 38
College Work-Study Program, 31
Community College Credential, 109, 110
Concurrent Master's degree credit, 38
Cost of living, 24
Counseling (See Education)
Course requirements, 45, 46
Credentials
(See also General Catalog and Announcement of Courses)
Community College, 109, 110
Credit
Transfer and Extension, 43
Criminal Justice Administration (See Public Administration and Urban Studies)
Degrees authorized, 27
Diploma, 47
Disqualification, Scholastic
From the Graduate Division, 41
Drama
Courses, 100, 101
Faculty, 99
Requirements for M.A., 99
Ecology (See Biological Sciences)
Economics
Courses, 103, 104
Faculty, 102
Requirements for M.A., 102
Education
Administration and Supervision, 107
Counseling, 107
Courses, 111-119
Educational Research, 108
Elementary Curriculum and Instruction, 106
Faculty, 110
Instructional Media, 107
Requirements for M.A., 105
Requirements for M.S. in Counseling, 108
Secondary Curriculum and Instruction, 106
Special Education, 108
Educational Research (See Education)
Electrical Engineering (See Engineering)
Elementary Curriculum and Instruction (See Education)
Engineering
Courses, 122-134
Faculty, 122
Requirements for M.S. in A.E., 120
Requirements for M.S. in C.E., 121
Requirements for M.S. in E.E., 121
Requirements for M.S. in M.E., 122
English
Courses, 136-138
Faculty, 136
Requirements for M.A., 135
Examinations
Departmental examinations (See appropriate department)
Final comprehensive in lieu of thesis (Plan B), 46
Graduate Record Examination Aptitude Test, 37, 44
Language (See under departmental requirements for degrees)
Extension courses, 43
Faculty (See under departments)
Federally insured loan programs, 31
Fees
Miscellaneous, 8
Refunds of, 9
Summer Session, 9
Waiver of nonresident graduate tuition, 29
Final approval, 47
Final examinations, 43
Finance (See Business Administration)
Financial Aid, 30
Foreign language requirement, 44

INDEX—Continued

- Foreign students, 28
 Foreign students, admission to San Diego State, 34
 French
 Courses, 140, 141
 Faculty, 139
 Requirements for M.A., 139
 Full-time student, 43
 Genetics (See Biological Sciences)
 Geography
 Courses, 143-145
 Faculty, 142
 Requirements for M.A., 142
 Geology
 Courses, 147, 148
 Faculty, 146
 Requirements for M.S., 146
 German
 Courses, 149-151
 Faculty, 149
 Requirements for M.A., 149
 Grade point averages, 39, 46
 Grading system, 39
 Graduate Assistantships, 29
 Graduate Council, 26
 Graduate degrees, 27
 Graduate Division, 25
 Graduate Teaching Assistantships, 29
 Health Science (See Health Science and Safety)
 Health Science and Safety
 Courses, 152, 153
 Faculty, 152
 Requirements for M.A. in Health Science, 152
 Health Services, 23
 History
 Courses, 155-157
 Faculty, 155
 Requirements for M.A., 154
 Home Economics
 Courses, 159, 160
 Faculty, 158
 Requirements for M.S., 158
 Human Resources Administration (See Business Administration)
 Incomplete grade, 39
 Industrial Arts
 Courses, 161-163
 Faculty, 161
 Requirements for M.A., 161
 Information Systems (See Business Administration)
 Institute
 Secondary School Teachers of Mathematics, 32
 Instructional Media (See Education)
 Insurance (See Business Administration)
 Journalism (See Mass Communications)
 Latin American Studies
 Courses, 165, 166
 Faculty, 164
 Requirements for M.A., 164
 Library, 21
 Library Science, 236
 Limitation of enrollment, 36
 Limits of study lists, 43
 Linguistics
 Courses, 168
 Faculty, 167
 Requirements for M.A., 167
 Living accommodations, 23
 Loan programs, 31, 32
 Management (See Business Administration)
 Management Science (See Business Administration)
 Marketing (See Business Administration)
 Mass Communications
 Courses, 170, 171
 Faculty, 169
 Requirements for M.S., 169
 Master of Arts
 Basic requirements, 45
 Master of Business Administration
 Basic requirements, 45
 Master of City Planning
 Basic requirements, 45
 Master of Public Administration
 Basic requirements, 45
 Master of Science
 Basic requirements, 45
 Master of Social Work
 Basic requirements, 45
 Mathematics
 Courses, 174-176
 Faculty, 173
 Requirements for M.A., 172
 Requirements for M.S. in Mathematics, 172
 Requirements for M.S. in Statistics, 173
 Mechanical Engineering (See Engineering)
 Microbiology
 Courses, 178
 Faculty, 177
 Requirements for M.S., 177
 (See also Biological Sciences)
 Music
 Courses, 180-182
 Faculty, 180
 Requirements for M.A., 179
 Numbering of courses, 39
 Official programs of study, 43
 Personnel Services Center, 23
 Philosophy
 Courses, 183-185
 Faculty, 183
 Requirements for M.A., 183
 Physical Education
 Courses, 186-188
 Faculty, 186
 Requirements for M.A., 186
 Physical Sciences
 Courses, 190
 Faculty, 189
 Requirements for M.A., 189
 Physics
 Courses, 192, 193
 Faculty, 192
 Requirements for M.A., 191
 Requirements for M.S., 191
 Political Science
 Courses, 195-197
 Faculty, 194
 Requirements for M.A., 194
 Prerequisites for graduate courses, 49
 Probation and disqualification, 41
 Production and Operations Management (See Business Administration)
 Psychology
 Courses, 200-202
 Faculty, 199
 Requirements for M.A., 199
 Requirements for M.S., 199
 Public Administration and Urban Studies
 Courses, 206-208
 Faculty, 205
 Requirements for M.C.P., 204
 Requirements for M.P.A., 203
 Requirements for M.S. in Criminal Justice Administration, 205
 Radio and Television (See Telecommunications and Film)
 Readmission to San Diego State, 40
 Real Estate (See Business Administration)

INDEX—Continued

- Recreation, 236
 Registration, 35
 Rehabilitation Counselors, program for, 109
 Repeated courses, 41
 Requirements for doctoral degrees, 47
 Chemistry:
 Admission to Graduate Divisions, 93
 Admission to program, 93
 Advancement to candidacy, 94
 Award of degree, 95
 Dissertation, 95
 Final examination, 95
 Foreign languages, 94
 Joint doctoral committee, 94
 Joint guidance committee, 94
 Procedures, 95
 Qualifying examination, 94
 Staff, 95
 Ecology:
 Admission to Graduate Divisions, 68
 Admission to program, 68
 Advancement to candidacy, 69
 Award of degree, 70
 Dissertation, 70
 Foreign language, 69
 Joint doctoral committees, 69
 Procedures, 70
 Qualifying examination, 69
 Staff, 70
 Genetics:
 Admission to Graduate Divisions, 71
 Admission to program, 71
 Advancement to candidacy, 72
 Award of degree, 73
 Foreign language, 72
 Joint doctoral committees, 72
 Procedures, 73
 Qualifying examination, 72
 Staff, 73
 Thesis, 72
 Requirements for master's degrees
 Admission to curriculum, 37
 Advancement to candidacy, 44
 Course requirements, 45
 Examinations, 44
 Final approval, 47
 Grade point averages, 46
 Unit requirements, 45
 Research Bureaus, 19, 21, 22
 Residence requirements, 43, 45, 69, 72, 93, 94
 Residency status clearance, 35
 Russian
 Courses, 209, 210
 Faculty, 209
 Requirements for M.A., 209
 San Diego State Advisory Board, 19
 Scholarships, 30
 Second master's degree, 38
 Secondary Curriculum and Instruction (See Education)
 Social Science
 Courses, 212
 Faculty, 212
 Requirements for M.A., 211
 Social Work
 Courses, 218-220
 Faculty, 217
 Requirements for M.S.S.W., 215
 Requirements for M.S.W., 214
 Sociology
 Courses, 222, 223
 Faculty, 221
 Requirements for M.A., 221
 Spanish
 Courses, 225, 226
 Faculty, 224
 Requirements for M.A., 224
 Special Education (See Education)
 Speech (See Speech Communication)
 Speech Communication
 Courses, 227-229
 Faculty, 227
 Requirements for M.A. in Speech, 227
 Speech Pathology and Audiology
 Courses, 231, 232
 Faculty, 230
 Requirements for M.A., 230
 State graduate fellowships, 30
 Statistics (See Mathematics)
 Student discipline and attendance, 41, 42
 Student grievances, 42
 Student health services, 23
 Summer Session study, 28
 Teaching credentials, 28
 Telecommunications and Film
 Courses, 234-235
 Faculty, 233
 Requirements for M.A. in Radio and Television, 233
 Thesis, 46
 Time Limits, 39, 40, 43
 Transcripts, 34, 42
 Transfer of credit, 43
 Tuition fees, 8
 Unclassified graduate student, 35
 Uncompleted theses, 40
 Unit or credit hour, 49
 Unit requirements, 44
 Veterans, 28
 Waiver of nonresident tuition fees, 29
 Withdrawals
 From courses, 40
 From graduate curricula, 38
 Zoology (See Biological Sciences)

SAN DIEGO STATE
5402 College Avenue
San Diego, California 92115

CATALOG

Educational Material