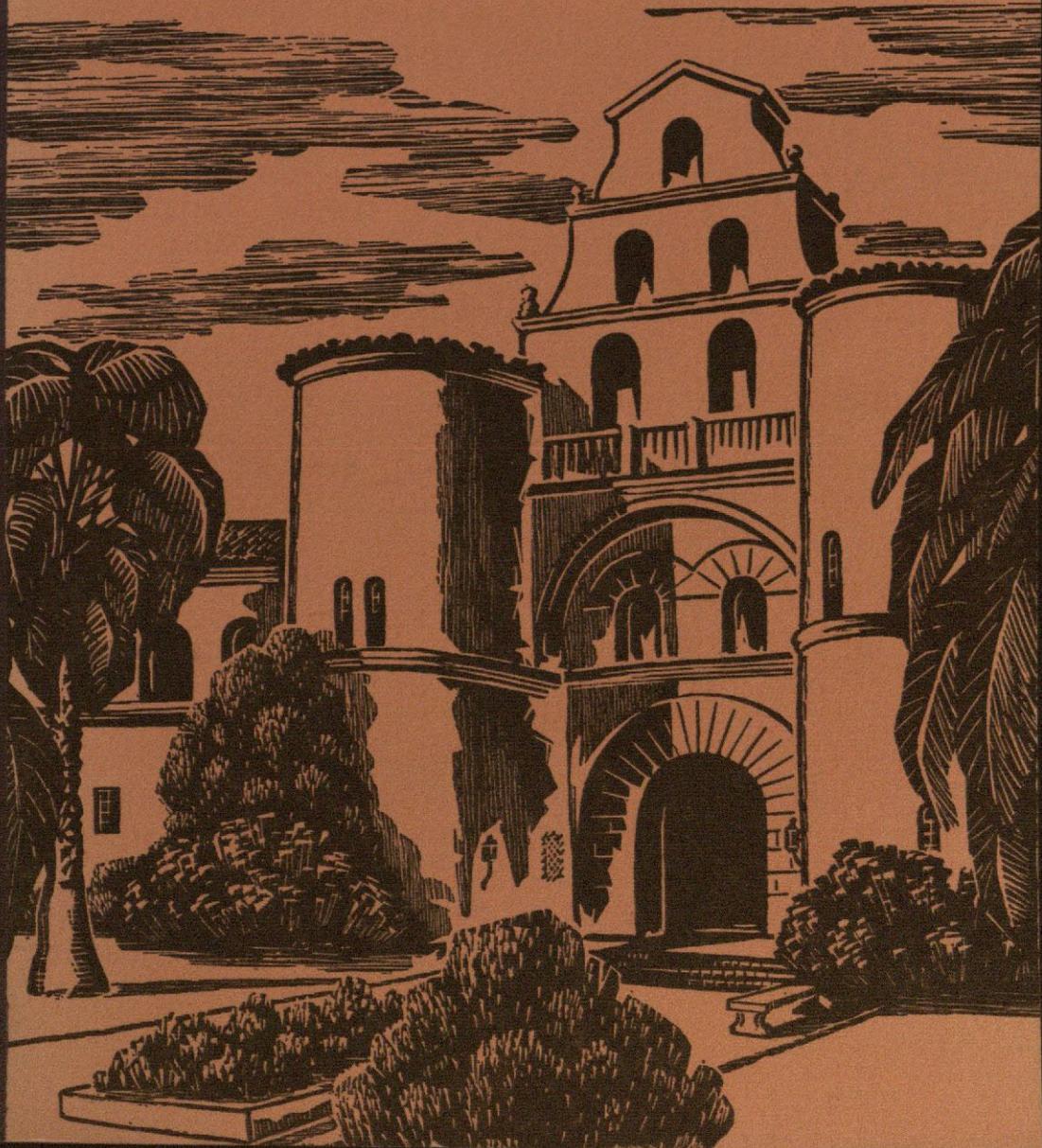


**SAN DIEGO STATE COLLEGE**  
**1959-1960 BULLETIN**  
**OF THE**  
**GRADUATE DIVISION**



*Graduate Division Bulletin*

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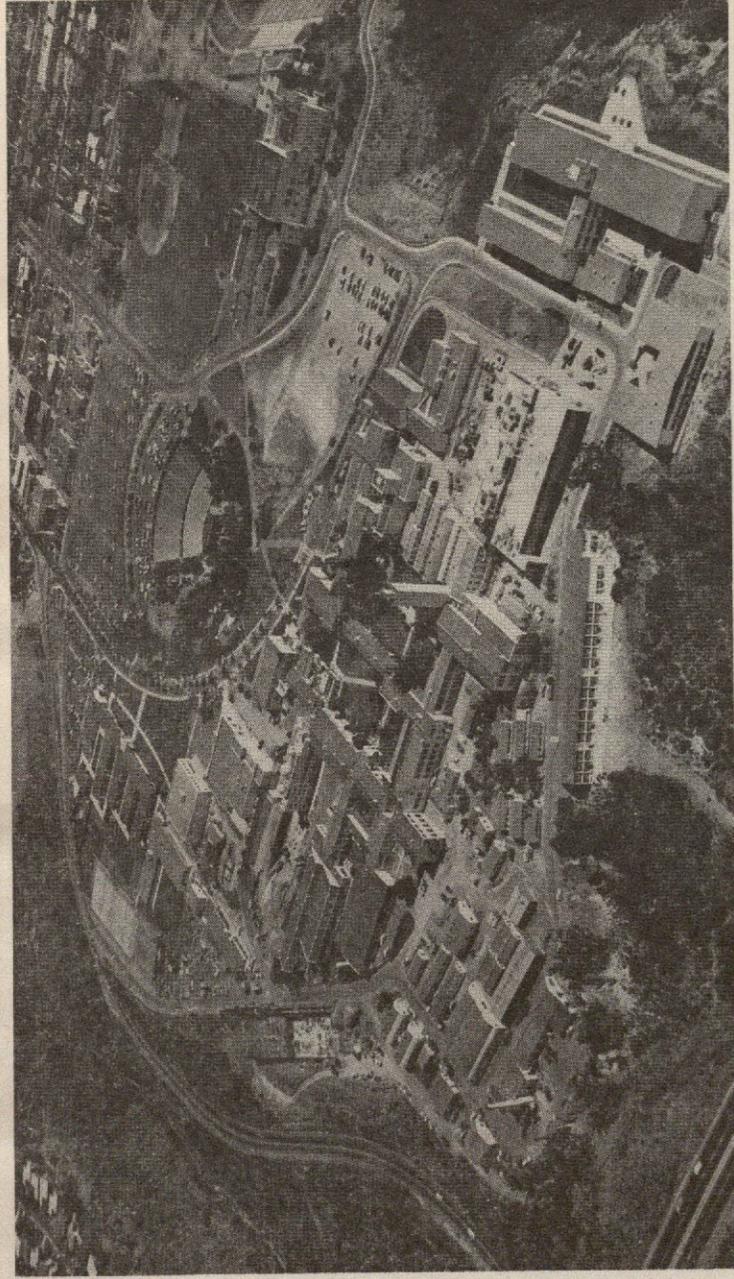
**GRADUATE PROGRAMS AT  
SAN DIEGO STATE COLLEGE**

1959-1960

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**SAN DIEGO STATE COLLEGE**  
SAN DIEGO 15, CALIFORNIA



#### SAN DIEGO STATE COLLEGE

San Diego State College, founded in 1897, is located one mile north of the city's principal east-west boulevard and about 12 miles from the central business district.

The buildings, which are of Spanish-Moorish architecture, include the following: Art, Business Administration, Campus Laboratory School for Teacher Training, Chemistry-Geology, Education Classroom Building, Engineering, Home Economics, Home Management Residence, Humanities-Social Sciences, Industrial Arts, Life Sciences, Music, Physical Education and Gymnasium, Physical Sciences, Physics-Astronomy, Speech Arts, including radio and television studios, Library, Health Services, Little Theatre, Cafeteria, Scripps Cottage (a student center), Bookstore, Open Air Theatre, Football Stadium, Track Field, and athletic fields and courts.

A \$20,000,000 building program now underway is expected to provide, within the next 10 years, the finest in educational opportunities for the rapidly growing population in metropolitan San Diego. (Photo—San Diego Union.)

# TABLE OF CONTENTS

## PART ONE

### THE COLLEGE AND THE GRADUATE DIVISION

	Page		Page
DEPARTMENT OF EDUCATION OF THE STATE OF CALIFORNIA .....	7	Graduate Work in the Summer Sessions .....	19
CALIFORNIA STATE BOARD OF EDUCATION .....	7	Graduate Study for Foreign Students .....	20
SAN DIEGO STATE COLLEGE ADVISORY BOARD .....	7	Veterans and Graduate Study .....	20
OFFICERS OF THE COLLEGE .....	8	Graduate Teaching Assistantships .....	20
COUNCIL OF THE GRADUATE DIVISION .....	9	Graduate Scholarships and Awards .....	20
ORGANIZATION OF THE COLLEGE FOR GRADUATE STUDY .....	10	ADMISSION OF GRADUATE STUDENTS TO THE COLLEGE	
CALENDAR FOR THE ACADEMIC YEAR .....	11	Admission Procedures .....	22
FEES .....	13	Residency Status Clearance .....	23
THE COLLEGE		Changes in Program .....	23
Accreditation .....	15	Graduate Standing in the College .....	23
The Faculty .....	15	Admission to the Graduate Division .....	23
The Library .....	15	Graduate-Senior Registration .....	24
Living Accommodations .....	15	REGULATIONS OF THE GRADUATE DIVISION	
Veteran Housing .....	16	Numbering of Courses .....	25
Personnel Services Center .....	16	Grading System .....	25
Student Health Services .....	16	Grade Point Averages .....	25
Placement Center .....	16	Incomplete Grade .....	25
Loans .....	17	Withdrawals and Changes of Program .....	26
THE GRADUATE DIVISION		Repeated Courses .....	26
Graduate Degrees .....	18	Probation .....	26
Graduate Teaching Credentials .....	18	Disqualification .....	26
Graduate Work in the Campus		Transcripts of Record .....	26
Evening Session Program .....	19	Auditors .....	27
		Final Examinations .....	27
		Transfer or Extension Course Credit .....	27
		Study List Limits for the Graduate Division .....	27
		Official Programs of Study .....	27
		Application for Graduation .....	27

## TABLE OF CONTENTS—Continued

### PART TWO

#### GRADUATE STUDY PROGRAMS—GENERAL REQUIREMENTS

	Page		Page
MASTER OF ARTS DEGREE	29	Examinations	32
Course and Unit Requirements	29	Thesis	32
Teaching Credential	29	Plan A	32
Residence	29	Plan B	32
Advancement to Candidacy	29	Final Approval	32
Examinations	30		
Thesis	30	ADVANCED CREDENTIALS	33
Plan A	30	General Secondary Credential	33
Plan B	30	Administration and Supervision	
Final Approval	30	Credentials	34
MASTER OF SCIENCE DEGREE	31	General Pupil Personnel Services	
Course and Unit Requirements	31	Credential	36
Residence	31	Credential for Teaching Excep-	
Directed Field Experience	31	tional Children	38
Advancement to Candidacy	32	Junior College Credential	39

### PART THREE

#### MAJOR FIELDS AND AREAS OF CONCENTRATION

	Page		Page
Art	42	Home Economics	80
Business Administration	44	Industrial Arts	81
Business Education	48	Life Sciences	83
Chemistry	50	Mathematics	87
Economics	54	Music	90
Education	56	Physics	93
Engineering	64	Political Science	97
English	67	Psychology	101
Foreign Languages	70	Social Science	104
Geography	73	Sociology	106
Health Education and Physical Edu-		Speech Arts	109
cation	74	Departments Offering Special Grad-	
History	77	uate Courses	112

## PART ONE

# THE COLLEGE AND THE GRADUATE DIVISION

### DEPARTMENT OF EDUCATION OF THE STATE OF CALIFORNIA

ROY E. SIMPSON	Superintendent of Public Instruction and Director of Education
J. BURTON VASCHE	Associate Superintendent; Chief, Division of State Colleges and Teacher Education
DON YOUNGREEN	Assistant Chief, Division of State Colleges and Teacher Education

### STATE BOARD OF EDUCATION

WILLIAM L. BLAIR, President	Pasadena
WILBER D. SIMONS, Vice President	Redding
BYRON H. ATKINSON	Los Angeles
THOMAS W. BRADEN	Oceanside
RAYMOND J. DABA	Redwood City
LOUIS H. HEILBRON	San Francisco
DR. MABEL E. KINNEY	Los Angeles
MRS. SEYMOUR MATHIESEN	Fresno
MRS. EVA C. NOLAND	Salinas
THOMAS L. PITTS	Alhambra

ROY E. SIMPSON, Secretary and Executive Officer

### SAN DIEGO STATE COLLEGE ADVISORY BOARD

E. ROBERT ANDERSON	MRS. FRANK E. MARCY
HARRY E. CALLAWAY	MRS. VIVIA E. O'TOOLE
ARMISTEAD B. CARTER	JOHN W. QUIMBY
WILLIAM G. DUFLOCK	ROBERT J. SULLIVAN, Vice Chairman
CARL M. ESENOFF	ORIEN W. TODD, JR.
MRS. E. T. HALE	BURNET C. WOHLFORD
MRS. HARLEY E. KNOX, Chairman	

### Associate Members

MRS. BYRON NETZLEY President, Ninth District, California Congress of Parents and Teachers
MRS. W. LOUIS MOORE President, San Diego Branch, American Association of University Women
DR. HARVEY J. URBAN President, San Diego State College Alumni Association

## OFFICERS OF THE COLLEGE

President Emeritus	Edward L. Hardy, LL.D.
President Emeritus	Walter R. Hepner, Ed.D.
President	Malcolm A. Love, Ph.D., LL.D.
Assistant to the President	Arvid T. Johnson, M.A.
Vice President	Ernest B. O'Bryne, Ph.D.
College Librarian	John Paul Stone, Ph.D.
Publications and Public Relations Manager	Gordon F. Lee, M.S.
Executive Dean	Darrell C. Holmes, Ph.D.
Building Assistant	Clarence B. Cover, M.A.
Administrative Analyst	Marion L. Parker, M.A.
Dean of the College	Donald R. Watson, Ed.D.
Assistant to Dean of the College	Alfred E. White, Ed.D.
Curriculum Evaluator	John L. Schmidt, Ph.D.
Dean of Arts and Sciences	Sidney L. Gulick, Ph.D.
Dean of Graduate and Professional Studies	Maurice M. Lemme, Ph.D.
Co-ordinator of Graduate Studies	Clayton M. Gjerde, Ph.D.
Dean of Education and Extended Services	Manfred H. Schrapp, Ph.D.
Co-ordinator of Extended Services	Manville R. Petteys, Ed.D.
Co-ordinator of the Evening Program	Glenn L. Hodge, Ph.D.
Co-ordinator of Audiovisual Services	James S. Kinder, Ph.D.
Secretary to the Faculty	Maurice L. Crawford, M.S.
Dean of Students	Herbert C. Peiffer, Jr., Ph.D.
Dean of Admissions and Records	Melvin A. Anderson, Ed.D.
Admissions Counselor	June Warren, M.A.
Registrar	Margaret L. Gilbert, A.B.
Dean of Counseling and Testing	Robert T. Gray, Ed.D.
Test Officer	Herman Roemmich, Ph.D.
Dean of Activities	Margery Ann Warmer, M.S.
Activities Adviser	Alan S. Mishne, A.B.
Activities Adviser	Marjorie Wallace, B.S.
Director of Health Services	Frank O. Robertson, M.D.
Housing Co-ordinator	John M. Yarborough, Ed.D.
Placement Officer	William M. Kidwell, Ph.D.
Graduate Manager, Associated Students	Richard H. Thomas, A.B.
Business Manager	Selwyn C. Hartigan, A.B.
Personnel Officer	Carey D. Folger
Chief of Maintenance	Timothy V. Hallahan, A.B.
Accounting Officer	Donald G. Parker
Administrative Assistant	Carolyn E. Kessler
Equipment and Materials Co-ordinator	Lois A. Boyd

## COUNCIL OF THE GRADUATE DIVISION

Upon recommendation of division chairmen of representatives from departments offering the master of science degree or advanced credentials, and from the established divisions of the college offering the master of arts degree, the President of the College appoints the membership of the Council of the Graduate Division. Appointments for the current year are as follows:

Dean of the College (ex officio)	Donald W. Watson, Ed.D.
Dean of Graduate Studies (chairman)	Maurice M. Lemme, Ph.D.
Co-ordinator of Graduate Studies	Clayton M. Gjerde, Ph.D.
Division of Business Administration	D. W. Belcher, Ph.D.
Division of Education	Peter C. Gega, Ed.D.
Division of Engineering	William H. Shutts, Ph.D.
Division of the Fine Arts	Paul L. Pfaff, Ph.D.
Division of the Humanities	Abraham P. Nasatir, Ph.D.
Division of the Life Sciences	Kenneth M. Taylor, Ph.D.
Division of Physical Education, Health Education, and Recreation	Frank L. Scott, Ph.D.
Division of the Physical Sciences	Chesney R. Moe, Ph.D.
Division of the Social Sciences	Frederick L. Ryan, Ph.D.
Business Administration (M.S.)	Simon Reznikoff, LL.B.
Physical Sciences (M.S.)	Ambrose R. Nichols, Ph.D.
Psychology (M.S.)	Virginia W. Voeks, Ph.D.
Public Administration (M.S.)	William R. Bigger, Ph.D.

## DUTIES AND RESPONSIBILITIES

The duties and responsibilities of the Council of the Graduate Division include, but are not necessarily limited to, the following activities which are consistent with the provisions of the California Administrative Code, Title 5, Education:

1. Establishing criteria for regular graduate standing in the Graduate Division and approval of regular standing for qualified applicants.
2. Determining the number and nature of examinations required in the Graduate Division, exclusive of departmental examinations.
3. Establishing requirements for advancement to candidacy and acting on requests for such advancement.
4. Considering and acting on all graduate degree programs and petitions of students in the Graduate Division.
5. Adopting rules concerning the form of presentation, acceptability, and disposition of master's degree theses.
6. Making final recommendation to the faculty for the awarding of the master's degree.
7. Making recommendations concerning departmental requests for new graduate level (200-numbered) courses and new master's degree curriculums.
8. Co-ordinating and systematizing procedures followed by divisions or departments offering advanced degrees or credentials.
9. Making recommendations to the President, the Dean of the College, committees of the college, and the faculty on matters pertaining to the Graduate Division.

## ORGANIZATION OF THE COLLEGE FOR GRADUATE STUDY

### DIVISION OF BUSINESS ADMINISTRATION

	Chas. W. Lamden, Ph.D., Chairman
Department of Accounting	Verne E. Odmark, Ph.D., Chairman
Department of Business Education	Maurice L. Crawford, M.S., Chairman
Department of Business Law, Real Estate, and Insurance	Robert K. Castetter, LL.M., Chairman
Department of Management	David W. Belcher, Ph.D., Chairman
Department of Marketing	Gerald K. Sharkey, Ph.D., Chairman

### DIVISION OF EDUCATION

Department of Education	Manfred H. Schrupp, Ph.D., Dean
Elementary Education	George A. Koester, Ph.D., Chairman
Secondary Education	John Jarolimek, Ph.D., Chairman
M.A. Degree in Education	E. Glen Fulkerson, Ed.D., Co-ordinator
Administrative Studies	Francis A. Ballantine, Ph.D., Co-ordinator
Guidance Studies	Richard A. Houseman, Ed.D., Co-ordinator
Special Education Studies	David D. Malcolm, Ph.D., Co-ordinator
	Francis A. Ballantine, Ph.D., Co-ordinator

### DIVISION OF ENGINEERING

Martin P. Capp, M.S., Chairman

### DIVISION OF FINE ARTS

Department of Art	George N. Sorenson, M.A., Chairman
Department of Home Economics	Everett Gee Jackson, M.A., Chairman
Department of Music	Ruth A. Talboy, M.A., Chairman
Department of Speech Arts	J. Dayton Smith, M.M., Chairman
	Sue W. Earnest, Ph.D., Chairman

### DIVISION OF HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION

Department of Health Education	William L. Terry, Ed.D., Chairman
Department of Men's Physical Education	William H. Lauritsen, Ph.D., Chairman
Department of Women's Physical Education	Carl W. Benton, M.S., Chairman
Department of Recreation	Florence S. Shannon, M.S., Chairman
	Frank L. Scott, Ph.D., Chairman

### DIVISION OF THE HUMANITIES

Department of English	John R. Adams, Ph.D., Chairman
Department of Foreign Languages	Harriet Haskell, Ph.D., Chairman
Department of History	Elizabeth M. Brown, Ph.D., Chairman
	Lionel U. Ridout, Ph.D., Chairman

### DIVISION OF THE LIFE SCIENCES

Department of Botany	Robert D. Harwood, Ph.D., Chairman
Department of Microbiology	Dorothy R. Harvey, M.A., Chairman
Department of Psychology	Mabel A. Myers, Ph.D., Chairman
Department of Zoology	Edward W. Geldreich, Ph.D., Chairman
	Andrew C. Olson, Ph.D., Chairman

### DIVISION OF THE PHYSICAL SCIENCES

Department of Chemistry	Dudley H. Robinson, Ph.D., Chairman
Department of Industrial Arts	Robert W. Isensee, Ph.D., Chairman
Department of Mathematics	Kenneth Phillips, Ph.D., Chairman
Department of Physics	Lester G. Riggs, Ph.D., Chairman
	Lester L. Skolil, Ph.D., Chairman

### DIVISION OF THE SOCIAL SCIENCES

Department of Economics	Davis S. Milne, Ph.D., Chairman
Department of Geography	Graydon K. Anderson, Ph.D., Chairman
Department of Political Science	James W. Taylor, Ph.D., Chairman
Department of Sociology-Anthropology	Donald B. Leiffer, Ph.D., Chairman
Public Administration	Bernard C. Kirby, Ph.D., Chairman
	William R. Bigger, Ph.D., Co-ordinator

## CALENDAR

1959-1960

### FALL SEMESTER

August 14	Last day for filing application for admission to the college for the fall semester.
August 25	Graduate aptitude test for master's degree applicants, by appointment, Graduate Division.
September 16-18	Registration and enrollment in classes for the regular day program. (Students registering in the evening program only, see the schedule in the Evening Program Bulletin.)
September 19	Registration for the evening program. (For complete information, see the Evening Program Bulletin.)
September 21	Classes begin.
October 3	General Culture Test, 9-12 a.m., by appointment, Graduate Division.
October 3	Graduate aptitude test for master's degree applicants, by appointment, Graduate Division.
October 7	Graduate aptitude test for master's degree applicants, by appointment, Graduate Division.
October 9	Last day for withdrawal from classes without penalty of class standing.
November 11	Holiday—Veterans Day.
November 26, 27	Thanksgiving recess.
December 4	Last date for withdrawal from classes for the semester.
December 16	Last day of classes before Christmas recess.
December 17- January 1	Christmas recess.
January 4	Classes resume.
January 8	Last date for withdrawal from the college for the semester.
January 9	Education department comprehensive examination for master's degree, Part I, by appointment—Education Division, 9-12 a.m.
January 16	Education department comprehensive examination for master's degree, Part II, by appointment—Education Division, 9-12 a.m.
January 19	Last day of classes before final examinations.
January 29	Last day of the fall semester.

## CALENDAR

1960

### SPRING SEMESTER

January 4	Last day for filing application for admission to the college for the spring semester.
February 3-5	Registration and enrollment in classes in the regular day program. (Students registering in the evening program only, see the schedule in the Evening Program Bulletin.)
February 6	Registration for evening program. (For complete information, see the Evening Program Bulletin.)
February 8	Classes begin.
February 22	Holiday—Washington's Birthday.
February 26	Last date for withdrawal from classes without penalty of class standing.
March 8	Graduate aptitude test for master's degree applicants, by appointment, Graduate Division.
March 12	Graduate aptitude test for master's degree applicants, by appointment, Graduate Division.
March 12	General Culture Test, 9-12 a.m., by appointment, Graduate Division.
April 8	Last day of classes before spring recess.
April 11-15	Spring recess.
April 18	Classes resume.
April 29	Last date for withdrawal from classes for the semester.
April 29	Application for graduation with the master's degree due.
May 16	Last date of withdrawal from the college for the semester.
May 21	Education department comprehensive examination for the master's degree, Part I, by appointment—Education Division, 9-12 a.m.
May 27	Last day of classes before final examinations.
May 28	Education department comprehensive examination for the master's degree, Part II, by appointment—Education Division, 9-12 a.m.
June 3	Final date for depositing completed theses at office of the Graduate Division for June graduation.
June 10	Commencement.

1959

### SUMMER SESSIONS

Term I (6 weeks)	June 29-August 7. End of Term I, August 7, final date for depositing completed theses at Office of the Graduate Division for summer graduation.
Term II (3 weeks)	August 10-August 28.

1960

### SUMMER SESSIONS

Term I (6 weeks)	June 27-August 5. End of Term I, August 5, final date for depositing completed theses at Office of the Graduate Division for summer graduation.
Term II (3 weeks)	August 8-August 26.

## FEES

### FEES PAYABLE AT TIME OF REGISTRATION

Students carrying more than six units:	
Materials and service	\$22
Auditors pay same fees as students carrying courses for credit.	
Activity fee (required)	8
<b>Total</b>	<b>\$30</b>
Students carrying six units or less:	
Materials and service for one, two, or three units	\$9
Materials and service for four, five, or six units	15
Auditors pay same fees as students carrying courses for credit.	
Nonresident Tuition (in addition to fees required of resident students):	
Nonresident student enrolled for 15 units or more	\$90
Nonresident student enrolled for less than 15 units	
(per unit or fraction thereof)	6
For fee-paying purposes, zero unit courses are counted as one unit.	

### MISCELLANEOUS FEES

	(Fees payable when service is rendered)	
Change of program		\$1
Failure to meet administratively required appointment or time limit		2
Late registration		2
Transcript of record (first copy free)		1
Organ practice		10
State teaching credentials (each credential)		4
The credential fee is collected through the college by cashier's check or post office money order made payable to the State Department of Education		
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 \$2 shall be retained to cover the cost of registration.

#### Nonresident tuition:

Tuition paid for a course scheduled to continue for an entire semester may be refunded in the following amounts 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	\$6 per unit
(2) During the second week of the semester	\$5 per unit
(3) During the third week of the semester	\$4 per unit
(4) During the fourth week of the semester	\$3 per unit
(5) During the fifth week of the semester	\$2 per unit
(6) During the sixth week of the semester	\$1 per unit

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)	\$9.50
Activity fee (required) Term I	2.00

### EXEMPTIONS

Students under Public Law 16, 346, 894, California state veteran, or state rehabilitation programs will have fees paid for tuition and materials and service under provisions of those 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 law without advance notice.

## THE COLLEGE

The campus of San Diego State lies on a mesa overlooking Mission Valley, the site of the first mission founded in California by Father Junipero Serra. Alvarado Freeway cuts through the valley, bringing the campus to within a few 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. The heritage of the past lives in the mission style and Spanish-Moorish architecture of San Diego State's 303-acre campus.

San Diego State, with an enrollment of more than 9,000 students, is one of 12 California state colleges. It offers a four-year liberal arts course in over 50 major fields of study and a graduate program leading to the master of arts and master of science degrees in some 29 fields, with additional areas of concentration. Programs leading to teaching credentials authorizing teaching in the public schools of California from kindergarten through junior 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 College Association, the National Council for Accreditation of Teacher Education, the California State Department of Education, and is approved by the Veterans Administration for the education and training of veterans. 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 FACULTY

The college faculty numbers over 500 members who have received their advanced training in over 100 colleges and universities of the United States or foreign countries. The faculty is distinguished not only in terms of formal education, but also represents a wide variety of practical experience in business, industry, government, and the teaching profession. Both past and present contributions to publications and research are extensive and impressive.

### THE LIBRARY

The library facilities of this college are noteworthy for an institution of its size. The library consists of over 190,000 volumes and receives more than 1,400 different periodicals selected to meet the requirements of a modern educational institution. A new addition to the library building increases the total floor space to over 100,000 square feet, with reading rooms seating 2,500 readers. Special group study and listening and typing rooms, a microfilm and microcard room, carrels, and a special graduate reading area are provided. Professionally trained librarians are available to render assistance to students and faculty in their reading and reference work in each large area. The Campus Laboratory School Library, representing a collection of 18,000 volumes, possesses equipment and building facilities that are unique.

San Diego State also has inter-library loan agreements with numerous specialized libraries in and near San Diego such as those at the U. S. Navy Electronics Laboratory, Convair, General Atomics Division, Natural History Museum, as well as with libraries at other colleges and universities.

### LIVING ACCOMMODATIONS

Five campus residence halls, each accommodating 200 students, are under construction. At least one of the halls for men and one for women will be ready for occupancy in September, 1959. The three-story buildings are attractively

designed and constructed and are fireproof and air-conditioned throughout. Furnishings are particularly well selected to provide facilities for study and comfortable campus living.

Meals for all residence hall students are provided and required in the college cafeteria.

For 1959-1960, the total charge per student per semester for campus board and room will be approximately \$420, payable one semester in advance. Health service benefits, including hospitalization, are included in this total. An additional \$20 breakage fee, refundable at the close of the college year, is required.

Additional information concerning campus housing may be obtained from the Office of the Dean of Activities.

#### VETERAN HOUSING

Although opportunities for veterans' housing are becoming increasingly limited, the college is privileged to make referral of married veterans enrolled as full-time students to city-operated housing projects. Referrals are made through the Office of the Dean of Students.

#### 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 academic, occupational, personal, or social nature. Counseling appointments may be made in Room 103 of the Business Administration building or by telephone, Extension 268. Psychological testing is available upon arrangement with a counselor.

#### STUDENT HEALTH SERVICES

As part of the program of student personnel services, the college provides health services for the protection and maintenance of student health. These health services, under the direction of a medical doctor and consisting of a full-time staff, assisted on a part-time basis by several medical specialists, are available to students for consultation, treatment of minor physical difficulties and emergencies, and counsel as to additional proper procedures. Full-time nurses are on duty. During the weeks the college is in session, students may obtain appointments with specialists during the hours they are available at the Office of Health Services. A student must be currently enrolled for seven or more units of credit to be eligible for other than emergency treatment.

Physical examinations are required of and provided for all teacher education students at time of admission to and graduation from the various educational credential programs. These examinations are furnished by the Health Services Office only to those credential candidates who are applying for a state credential through the college, screened by the college.

#### PLACEMENT CENTER

The 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. Since the placement services rendered by the center are of great importance to the graduate student, the following information is presented for his assistance.

The Placement Center serves all divisions of the college. During the last college year, the Center served 228 graduate students who had received teaching credentials, 274 teaching alumni, 20 school administrator registrants, and 254 other alumni and graduate students. Listed with the Center last year were over 1,200 job requests for teachers in high schools, 46 for junior colleges, 22 for college and universities, and 264 for special teachers, supervisors and school administrators. Over 3,000 requests were listed for graduates of the college.

The Placement Center, through its professional staff, 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 Placement Center maintains a vocational library of current materials and company brochures from firms and agencies 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.

#### LOANS

Short-term loans are available to students who have attended San Diego State College for at least one semester and who have demonstrated ability to do satisfactory graduate work. Long-term loans are available in limited amounts to students who are qualified scholastically and who show evidence they need loans to complete their college education.

San Diego State is participating in the National Defense Student Loan Program under one of the titles of the National Defense Education Act of 1958. Inquiries concerning this program should be directed to Dr. Roy E. Cameron, the Institutional Representative. Money will be available for long-term loans to (1) "students with a superior academic background who express a desire to teach in elementary or secondary schools, and (2) students whose academic background indicates a superior capacity of preparation in science, mathematics, engineering, or a modern foreign language." One of the advantages of the National Defense Student Loan Program is that it provides a "forgiveness" of 10 percent per year not to exceed 50 percent of any loan which may be canceled for service as a full-time teacher in a public elementary or secondary school.

Further information concerning the various loan funds available to graduate students may be obtained from the Loans Administrator in the Office of the Dean of Activities.

## THE GRADUATE DIVISION

San Diego State College was authorized by the California State Board of Education to offer graduate work in connection with the general secondary credential in 1946. The master of arts degree was authorized in 1949 and the master of science degree in 1955. These degrees are designed to accomplish one or more of the following objectives: (1) To improve the student's professional competence in educational service; (2) To develop the student's ability for research and continued self-directed study in his field of specialization; and (3) To afford an opportunity for the student to broaden his cultural background, to develop personal and social responsibility, and to prepare for community leadership.

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.

All graduate work leading to advanced degrees is under the administration of the Graduate Division which is also charged with the development and improvement of graduate curricula in liberal arts and professional fields, especially those fields concerned with teaching, supervising, or administering in the schools of California. Responsibility for graduate programs is delegated by the president and the faculty to the Graduate Council under the chairmanship of the Dean of Graduate Studies who also acts as the administrative officer of the Graduate Division.

As of September, 1958, 2,000 graduate students were enrolled in the college, 1,280 of whom were registered in master's degree programs. From 1949 to 1958, San Diego College has awarded 573 master of arts degrees and 38 master of science degrees.

### GRADUATE DEGREES

#### MASTER OF ARTS

Art	Industrial Arts
Biology	Life Sciences
Business Education	Mathematics
Chemistry	Music
Economics	Personnel Supervision and Training
Education	Physics
English	Political Science
Foreign Languages	Psychology
Health Education and Physical Education	Social Science
History	Sociology
	Speech Arts

#### MASTER OF SCIENCE

Applied Biology	Mechanical Engineering
Business Administration	Physics
Chemistry	Psychology
Mathematics	Public Administration

### GRADUATE TEACHING CREDENTIALS

Graduate work is offered at San Diego State leading to the following credentials:

1. General Secondary Credential.
2. Administration Credentials (Elementary and Secondary).
3. Supervision Credential.
4. General Pupil Personnel Services Credential.
5. Credential for Teaching Exceptional Children.
6. Junior College Credential.

### GENERAL SECONDARY CREDENTIAL

The general secondary credential is a basic credential authorizing its holder to teach any subject in grades 7 through 14. It requires a major and a minor in subject fields commonly taught in high school. It also requires a full year of graduate work in education and subject fields. For a more complete description of this credential, refer to Part Two of this bulletin on Advanced Credentials.

### ADMINISTRATION AND SUPERVISION CREDENTIALS

Those who hold credentials in administration are authorized to serve as principals, vice principals, and other administrative personnel as authorized by boards of education at the level designated in the credential.

Those who hold the supervision credential are authorized to supervise the teaching of any subjects at the level designated by the basic credential.

For further information on these credentials, refer to Part Two of this bulletin on Advanced Credentials.

### GENERAL PUPIL PERSONNEL SERVICES CREDENTIAL

The general pupil personnel services credential authorizes its holders to perform pupil personnel services in the areas of child welfare and attendance, psychology, psychometry, and pupil counseling, in elementary and secondary schools. For a more complete description of this credential, refer to Part Two of this bulletin on Advanced Credentials.

### CREDENTIAL FOR TEACHING EXCEPTIONAL CHILDREN

The credential for teaching exceptional children authorizes its holder to teach mentally retarded pupils, or pupils with hearing or speech difficulties. For a more complete description of this credential, refer to Part Two of this bulletin on Advanced Credentials.

### PREREQUISITES FOR GRADUATE CREDENTIALS

All of the above credentials, with the exception of the general secondary credential, are advanced credentials, and therefore require as prerequisite work the completion of all requirements for basic teaching credentials. Students not holding a California teaching credential, who wish one of the advanced credentials, should refer to the regular college catalog for information on requirements for basic credentials.

The advanced credentials in administration, supervision, and pupil personnel services also require public school teaching experience.

Students who have no background in professional education, but who have adequate background in major and minor subject areas can expect to complete requirements for the general secondary credential in approximately three semesters of full-time work.

Students who hold basic teaching credentials, who desire one of the advanced credentials, can expect to meet requirements in one full year of graduate work or its equivalent. Refer to Part Two of this bulletin on Advanced Credentials for details on requirements.

### GRADUATE WORK IN THE CAMPUS EVENING SESSION PROGRAM

Graduate students who wish to engage in graduate study leading to the master's degree or graduate credentials, but who are unable to be in attendance during the day, may be able to complete the major portion of the requirements by enrolling in the Campus Evening Session. Classes offered under this program are part of the regular college offerings and are taught by the regular faculty of the college. Evening session graduate students working for the master's degree must meet all requirements established by the Graduate Division for graduate students in the day session. Not more than six units of graduate work should be attempted by a graduate student who is employed full-time. A special Evening Program Bulletin is issued each semester and may be obtained upon request from the Office of the Coordinator of the Evening Program.

### GRADUATE WORK IN THE SUMMER SESSIONS

San Diego State College conducts summer sessions in which a graduate student may earn credit in residence which may be used to satisfy the requirements for

a master's degree or for graduate credentials. Before credit earned in the summer sessions is accepted on a master's degree program, a student must meet all the requirements established by the Graduate Division for graduate students in the day session enrolled during the regular academic year.

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. In the Intersession only a limited number of special workshops and conferences are usually offered. Students who enroll for more units than authorized, including concurrent college courses taken outside this college, will not receive graduation credit for the excess units.

### GRADUATE STUDY FOR FOREIGN STUDENTS

Foreign students wishing to enroll for graduate work in the college should obtain admission forms from the Admissions Office and return the completed forms and duplicate copies of official transcripts of all college or university work completed at least six weeks before the registration date of the semester in which the student wishes to enter. Consult Part One of this bulletin, on Admission of Graduate Students, for instructions. The Graduate Council requires the applicant to take an English competency examination to determine whether or not the student has a sufficient command of English to enter graduate work. Students may be required to enroll in remedial courses for the purpose of removing deficiencies in English.

### VETERANS AND GRADUATE STUDY

San Diego State has been approved by the Veterans Administration and the California State Department of Education to offer graduate work 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 the Personnel Services Center for information and counseling regarding veteran 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, the general secondary credential, school administration credential, etc.

Graduate veterans are required to carry graduate loads of not less than 12 officially approved units per semester for full subsistence. Half subsistence allowances may be given for six such units per semester.

### GRADUATE TEACHING ASSISTANTSHIPS

Graduate assistantships are available in the areas of business administration (accounting and business management), chemistry, engineering, English, industrial arts, life sciences, mathematics, physical education and health education, and physics. For the academic year, 1959-1960, these assistantships pay \$2,148 for half time (six units) service and \$1,074 for quarter time (three units) service. Applicants must satisfy the requirements for regular graduate standing in the Graduate Division; have a 2.75 (A is 4.0) grade point average or better in the undergraduate major; and make a satisfactory score on the graduate aptitude test. Application blanks and further information may be obtained from the Office of the Graduate Division.

### 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 specified.

**AMERICAN ASSOCIATION OF UNIVERSITY WOMEN.** Awarded each June to a graduating woman senior who will begin work in an accredited college or university toward a higher degree or credential. \$100.

**CONVAIR SCHOLARSHIPS.** Awarded to graduate students in engineering and the allied sciences. Maximum amount of \$1,000 (payable in 10 monthly payments of \$100). Awards are made by Convaire and applications must be sent directly to the company. Interested students planning graduate work in engineering, chemistry, mathematics, or physics at San Diego State or some other college may obtain application forms from the Office of the Graduate Division.

**FED-MART SCHOLARSHIPS.** Awarded to graduate students on the basis of scholarship, although need is also given weight. \$100 per semester. Further information may be obtained at the Office of the Graduate Division.

**PUBLIC ADMINISTRATION INSTITUTE ON GOVERNMENT FELLOWSHIP.** Awarded annually to a graduate student in political science. \$200 per year.

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

**SAN DIEGO COUNTY TEACHERS ASSOCIATION.** Awarded to four students in the field of education. \$100 each, per year.

**SOROPTIMIST INTERNATIONAL OF SAN DIEGO.** A \$200 scholarship to a senior or graduate woman student regularly enrolled in the Division of Physical Sciences, with preference being given to a student enrolled in engineering, chemistry, or physics. In selecting the student, particular weight will be given to leadership qualities, scholastic ability and attainment.

**TEACHER EDUCATION SCHOLARSHIP.** Awarded to a fifth year student in training for the general secondary credential. \$400 per year.

**DOROTHY CRANSTON STOTT.** Awarded to a graduate of San Diego State College with a major in English. Selection is made by the Department of English. \$100 per year.

**K. W. STOTT.** Awarded to a graduate of San Diego State College with a major in history. Selection is made by the Department of History. \$100 per year.

**ZONTA INTERNATIONAL CLUB SCHOLARSHIP.** Awarded to a graduate or upper division student with a major in Speech Correction. Applicants must be recommended by the Speech Arts Department and the recipient must spend eight hours a week in the clinical work of the Speech Arts Department. \$300.

### INSTITUTE FOR SECONDARY SCHOOL TEACHERS OF MATHEMATICS

Under a grant from the National Science Foundation, San Diego State College is offering a full-time academic year institute for 50 high school teachers of mathematics during the academic year 1959-1960. An additional optional summer session is scheduled for the 1960 summer session.

Only graduate students who are teachers of mathematics are accepted in the institute and the curriculum will provide the better trained participants an opportunity to earn the master of arts degree in mathematics. The purpose of the institute is to give mathematics teachers in the secondary schools a broader knowledge of modern mathematics and to increase their ability to teach it to high school students.

The basic stipend of \$3,000 for the academic year may be increased by dependency, travel, and book allowances. Tuition and fees are paid by the National Science Foundation. Information concerning the institute may be obtained from Dr. J. E. Eagle, Director, Mathematics Institute, San Diego State College.

## ADMISSION OF GRADUATE STUDENTS TO THE COLLEGE

### ADMISSION PROCEDURE

All graduate students (including graduates of San Diego State College) anticipating enrollment at this college must comply with the following procedures:

1. **File Application for Admission to the College.** This application should be filed during the semester preceding the one in which the student expects to enroll. The following forms must be filed in the Admissions Office: (1) Application for Admission (or readmission) and (2) Health History Record. These forms may be obtained from the Admissions Office. Letters from students signifying intention to enroll will not be considered as applications for admission. The official forms must be filed. The calendar in this bulletin gives final dates for filing of applications. Applications received after the final date for filing cannot be accepted for admission to the semester immediately following.

2. **File Official Transcripts.** The student must file official transcripts from EACH college or university attended (including extension, correspondence, summer session, or evening courses). If a student plans to enter a master's degree program or a graduate credential program, he must file all transcripts in duplicate. An official transcript is one sent directly between registrars of schools. The student should request the college or university attended to send the transcript to the Admissions Office, San Diego State College. All records or transcripts received at the Admissions Office become the property of the college and will not be released nor will copies be made.

3. **Take Qualifying Examinations.** Graduate students may be required to take one or more of the examinations listed below. Consult the calendar in this bulletin for dates on which examinations are given.

- (a) **Fundamentals Test.** This test is required of graduate students only if they are candidates for any of the elementary teaching credentials. This test must be taken prior to admission to teacher education.
- (b) **Cooperative English Test.** This test is required of graduate students only if they are candidates for any of the secondary teaching credentials. For further information, check with the Coordinator of Secondary Education.
- (c) **General Cultural Test.** This test is the achievement test required of applicants for the master of arts degree for teaching service. The test is also required of all graduate students planning to earn a general secondary credential through the teacher education program at this college. Applicants for the master of arts degree (without taking the credential program) must make reservations for the test at the Office of the Graduate Division. All graduate students planning to earn a general secondary credential, either with or without a master of arts degree, should make reservations in the Education Division Office, and report for the test as scheduled.
- (d) **Graduate Aptitude Test.** This test is required of all graduate students who intend to enroll in a master's degree program. A reservation for this test must be made at the Office of the Graduate Division. This test may be taken during the last semester of the senior year.

No preparation for this test is necessary and students desiring the master's degree should make arrangements to take the test prior to or during their first semester of graduate work. Consult the calendar in this bulletin for dates on which the test is scheduled or call the Office of the Graduate Division for information.

### RESIDENCY STATUS CLEARANCE

Each student enrolling in the college must be classified as a resident or nonresident student, prior to the payment of registration fees. The Residency Status Office will issue instructions to the applicant on the procedure to follow in obtaining residency classification. Specific instructions will be found in the *Class Schedule and Instructions for Registration*, which is issued prior to the beginning of each semester. Applicants for the Evening Program only will find instructions on procedure to follow in obtaining residency classification in the *Evening Program Bulletin*, which is also issued prior to the beginning of each semester.

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.

### CHANGES IN PROGRAM

A student is responsible for any change in his 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 of registration.

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 from audit to credit or from credit to audit; and changing sections of the same course. Consult calendar for deadline dates for change of program.

### GRADUATE STANDING IN THE COLLEGE

If the application of a graduate student for admission to the college is approved, the Dean of Admissions and Records will notify the student that he has been admitted to the college in one of the following classifications:

- (1) As an **unclassified graduate**, if the student holds an acceptable bachelor's degree from an accredited college; or
- (2) As a **special graduate**, if the applicant's degree is from a nonaccredited college.

Students who have unclassified graduate standing in the college may apply for admission to the Graduate Division with regular graduate standing.

#### Unclassified Graduate Student

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. Credit earned as an unclassified graduate may be accepted on a master's degree program upon petition by the student and approval of the graduate adviser and the Dean of Graduate Studies.

#### Special Graduate Student

A special graduate student is not eligible to enroll in 200-numbered courses. Under supervision of the Dean of Admissions and Records, a special graduate student may be admitted to nongraduate level courses for the purpose of removing the undergraduate deficiencies for which he may be held. Upon the completion of at least 12 units of approved upper division postgraduate work with a grade point average of not less than 2.5 and removal of all deficiencies, the Dean of Admissions and Records may change the student's standing from special graduate to unclassified graduate.

### ADMISSION TO THE GRADUATE DIVISION

After a graduate student has received notification from the Dean of Admissions and Records of his admission to the college as an unclassified graduate student, he may apply for admission to the Graduate Division and **regular graduate standing**.

This is a necessary step for students who expect to be advanced to candidacy for a graduate degree or a graduate credential. Graduate students desiring to take course work but who do not expect to obtain an advanced degree or a graduate credential may do so as unclassified graduates.

Application for admission to the graduate division and regular graduate standing must be filed, in duplicate, on forms available at the Office of the Graduate Division.

### Regular Graduate Standing and Advancement to Candidacy

In order to qualify for consideration as a candidate for an advanced degree or graduate credential, the student must be admitted to the Graduate Division with regular graduate standing. Requirements are as follows:

- (1) Completion of requirements for unclassified graduate standing in the college.
- (2) A minimum grade point average of 2.5 in all undergraduate work taken for the bachelor's degree.
- (3) Completion of the Graduate Aptitude Test described above.
- (4) Satisfactory completion of the minimum requirements of the division or department, including an appropriate major or its equivalent and the additional departmental qualifying examinations or requirements as described in Part Three of this bulletin under the major field of concentration.

### Assignment of a Graduate Adviser

An applicant for admission to the Graduate Division who meets the above qualifications will be admitted to the Graduate Division with regular graduate standing upon the recommendation of his major department or division.

Each student with regular graduate standing is assigned to a graduate adviser at the Office of the Graduate Division, following a conference with the Dean of Graduate Studies.

Graduate students who wish to work for a graduate credential but not for an advanced degree will be referred to the appropriate co-ordinator in the Division of Education.

If a student does not meet the minimum grade point average of 2.5 in his undergraduate work, or if he has not met the minimum requirements of a division or department, he will be referred to his major department or division where, under guidance, 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 program.

### Limitations on Candidacy for a Degree

Admission to the Graduate Division with regular graduate standing does not necessarily imply that the student will be advanced to candidacy for a graduate degree or a graduate credential.

A graduate student who has begun work on a graduate program but has completed no courses at this college within the last calendar year is considered to have withdrawn from the college. Such students must file application for readmission to the college and the Graduate Division if they wish to resume their graduate work. A student who withdraws from a graduate program may be required to comply with regulations and requirements in effect at the time he gains readmission to the Graduate Division.

### GRADUATE-SENIOR REGISTRATION

A student who is within seven units of completing requirements for the bachelor's degree whose overall grade point average is 2.75 or above may petition at the Office of the Graduate Division to earn graduate credit concurrently with the remaining requirements for the bachelor's degree. The degree must be completed in the same semester for which the petition is approved. The rules of the Graduate Division shall prevail in regard to academic load. (Refer to the section of this bulletin on Regulations of the Graduate Division for information on study list limits.)

## REGULATIONS OF THE GRADUATE DIVISION

Graduate students are held individually responsible for complying with regulations and deadlines established by the Graduate Division. Questions concerning graduate study at San Diego State College should be referred to the Office of the Graduate Division.

All graduate students matriculating after August, 1959, will be held to the regulations contained in this bulletin. A student whose master's degree work began 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 of his application for admission to the Graduate Division.

### 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; WP (withdrawal passing), not counted in grade point average; WF (withdrawal failing), counted as failing in the grade point average; Cr (credit), signifying units earned, but not counted in the grade point average. The mark "Cr" is used in reporting satisfactory completion of certain courses where letter grades would be inappropriate. No course in which a final grade below "C" was earned may be used to satisfy the requirements for a master's degree.

### GRADE POINT AVERAGES

In the calculation of grade point averages for graduate students, the number of units attempted is determined by all work taken at this college used in an official program leading to the master's degree, including all courses required as prerequisites, directed student teaching where applicable, and courses taken as remedial work. Courses for which WP is received are not counted as units attempted. The grade point average is determined by dividing the total number of grade points earned by the total number of units attempted.

### INCOMPLETE GRADE

One calendar year beyond the end of the term when an incomplete grade is assigned will be allowed for making up the incomplete through removal of course deficiencies. If the student re-enrolls in the course for credit and completes it, he has repeated the course, for which he will receive the credit and grade points earned. 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.

This regulation does not apply to the theses courses numbered 299, which are not counted as units attempted until the final grade has been assigned, provided that the course be completed within the time permitted by the Graduate Office.

## WITHDRAWALS AND CHANGES OF PROGRAM

### OFFICIAL WITHDRAWAL OR CHANGE OF PROGRAM

**Official Withdrawal or Change in Schedule of Classes.** A student withdrawing from college or from a class must file an official withdrawal form or change of program form with the Registrar. Forms may be obtained at the Registrar's Office.

**Withdrawal Deadline Dates and Penalties.** If a student officially withdraws from college or from a class by the end of the third week of classes, a grade of WP (withdrawal passing) will be recorded upon his permanent record for each class from which he has withdrawn. If he withdraws after the third week and not later than the end of the eleventh week of classes, either a WP 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 eleventh week, withdrawal from a class is not permitted. A final grade will be recorded for each class for which the student is enrolled. Check calendar for last date of withdrawal from college.

### UNOFFICIAL WITHDRAWAL

**Unofficial Withdrawal.** A student unofficially withdrawing from class or from college will receive failing grades in all courses from which he unofficially withdraws. 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.

### REPEATED COURSES

A graduate student may not repeat courses which have been taken as part of the master's degree, except in the case of courses required as prerequisites to a master's degree program. Such courses may be repeated under the overall college regulations for repeated courses. (Refer to the general catalog.)

### PROBATION

Any graduate student whose scholarship record falls below a "C" average (2.0) for all postgraduate work attempted, or all postgraduate college work attempted at San Diego State College, will be placed on probation by the Office of Admissions. Probation may be continued, provided that the student obtains a "C" average or better each semester while on probation. The student will be removed from probation when he has attained a "C" average or better on all postgraduate work attempted and on all postgraduate college work attempted at San Diego State College.

### DISQUALIFICATION FROM THE COLLEGE

**Disqualification for Scholarship.** Any student on probation whose scholarship falls below a "C" average (2.0) in any single semester or summer session will be subject to disqualification and dismissal from the college. Veterans who are disqualified from further attendance at this college forfeit their rights to veteran benefits. Specific information may be obtained from the Veterans Administration regarding disqualification of veterans in graduate programs.

**Reinstatement After Disqualification.** A disqualified student may be readmitted to the college for reasons satisfactory to the Board of Admissions. Applications for readmission must be made on forms which may be obtained at the Admissions Office. Students petitioning for readmission are required to have personal interviews with members of the Board of Admissions.

### TRANSCRIPTS OF RECORD

An official transcript of record may be obtained by filing an application for transcript at the Registrar's Office. A fee of \$1 is charged for each transcript (first copy free). 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. Once a student has matriculated in this college or has had an official evaluation made, transcripts from other schools or colleges become the property of this college and will not be released nor will copies be made.

## AUDITORS

A graduate student who wishes to enroll in a course for "audit" instead of "credit" must meet the requirements for admission to the college and comply with all regulations for which the student taking the course for credit is held. An auditor pays the same fees and has the same privileges as do students who take equivalent work for credit, but is not held for final examinations and does not receive final credit in courses.

### FINAL EXAMINATIONS

No final examination shall be given to individual students before the regular time. Any student who is passing in a course 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

A total of not more than six units of work earned in residence at another college, or work earned in regularly organized extension courses at San Diego State College, if recommended by the graduate adviser and approved by the Dean of Graduate Studies, will be accepted as part of the requirements for the master's degree. Approval for extension courses must be obtained by the master's degree applicant before the close of registration for the semester during which the course is offered. Work taken by correspondence is not acceptable.

### STUDY LIST LIMITS FOR THE GRADUATE DIVISION

A full-time graduate student who is not taking any 200-numbered courses may register for 17½ units of credit during any semester. If one or more 200-numbered courses is included in the study list, the maximum number of units permitted is 15. An excess study load requires the approval of the Dean of Graduate Studies at the beginning of the semester in which the credit is to be earned.

Graduate students enrolled in either day or evening sessions who are employed full time should not attempt to earn more than six units of credit per semester. Graduate students attending summer sessions are limited to one unit of credit per week of attendance.

Graduate students who are employed on a half-time basis as graduate assistants at San Diego State College are limited to nine units of course work unless their request for excess load is approved by the Dean of Graduate Studies.

Students who enroll for more units than authorized will not receive credit on their official master's degree programs for the excess number of units completed.

### OFFICIAL PROGRAMS OF STUDY

Official 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 taking no courses during a calendar year. Students who have withdrawn must file a request for readmission to the Graduate Division before they will be permitted to register for any courses leading to the master's degree.

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.

### APPLICATION FOR GRADUATION

An application for graduation must be filed in the Office of the Graduate Division four weeks in advance of the date of graduation.

## PART TWO GRADUATE STUDY PROGRAMS—GENERAL REQUIREMENTS

### MASTER OF ARTS DEGREE

#### GENERAL REQUIREMENTS

The master of arts degree program of a student who has regular graduate standing in the Graduate Division is determined on the basis of his educational background, experience, and objectives. Students who plan to teach, supervise, or administer in the elementary and secondary schools may elect a master of arts degree for teaching service with a concentration in an academic field or in education. Students for whom the foregoing objective is inappropriate may elect a master of arts degree with a major in an academic field. The specific requirements for the concentration and the major are stated in Part Three, Fields of Study and Courses of Instruction.

#### 1. COURSE AND UNIT REQUIREMENTS:

- A. A minimum of 30 units in approved courses numbered 100 or above. Thirty units must be earned within the seven-year period immediately preceding the date when all of the requirements for the degree are completed. In unusual circumstances, the student may petition for an extension of time. A student may be required to validate courses outside the seven-year period for recency by comprehensive examinations over their content or by substituting other approved courses (already completed or to be completed) for outdated courses.
- B. A minimum of 12 units must be in 200-numbered courses.
- C. A minimum grade point average of 3.0 (B) on all postgraduate work taken at this college for the master's degree, including courses taken to remove deficiencies. Credit for courses in which a grade lower than "C" is received cannot be used to satisfy requirements for graduate degrees.
- D. 12 units must be earned after advancement to candidacy.
- E. Not more than a total of six units may be in special study courses, 199 and 298.

#### 2. TEACHING CREDENTIAL:

Credentials are required only for the master of arts degree for teaching service. A student who desires to obtain this degree must hold a valid California day school credential (other than a provisional credential) or be a licensed teacher from another state with a minimum of one year of teaching experience, or complete all requirements for a California credential concurrently with the master's degree requirements. For an approved applicant preparing to teach or supervise in institutions not requiring teaching credentials, the credential requirement may be waived provided a minimum of 12 semester units of professional education is included in his graduate work.

#### 3. RESIDENCE:

Applications must complete at least 24 units of their programs in residence at San Diego State College.

#### 4. ADVANCEMENT TO CANDIDACY:

In addition to holding regular graduate standing in the Graduate Division, a student desiring advancement to candidacy for the master of arts degree must file a complete graduate program of study, approved by his graduate adviser,

in the Office of the Graduate Division. A student will be considered for advancement to candidacy after (a) he has earned at least 12 units in his graduate program at this college with a minimum grade point average of 3.0 (B) or six units for graduates of San Diego State College, provided their undergraduate grade point average was at least 2.75; (b) he has removed all undergraduate deficiencies and has completed all departmental or divisional requirements; (c) he has attained satisfactory scores on the Graduate Aptitude Examination and, if applicable, the achievement examination (General Culture Test); (d) he has been recommended for advancement to candidacy by the department or division concerned; and (e) final approval has been given by the Graduate Council. Written notification of advancement to candidacy will be sent to the student from the Office of the Graduate Division.

#### 5. EXAMINATIONS:

Prior to or during their first semester in residence, all students desiring the master of arts degree must take the Graduate Aptitude Examination. Students desiring the master of arts degree for teaching service must take the achievement examination in addition to the Graduate Aptitude Examination. Examinations required by departments are listed under departmental headings in Part Three, Fields of Study and Courses of Instruction. (See below for comprehensive examinations in Plan B.)

#### 6. THESIS:

**Plan A**, requiring a thesis or project, may be chosen by a student majoring in any field in which the master of arts degree is offered. Three units of credit are granted for the thesis or project, course 299, upon its acceptance by the student's thesis committee and the Graduate Council. Students will not be permitted to register for course 299 until they have received official notice of advancement to candidacy from the Office of the Graduate Division and have an officially appointed thesis or project committee. Theses or projects must be completed four weeks in advance of the date of the convocation at which the degree is to be conferred. Information as to specific requirements for typing, binding, number of copies, etc., may be obtained at the Office of the Graduate Division.

**Plan B**, involving a comprehensive examination in lieu of a thesis, may be chosen by students majoring in education, business education, foreign languages, and mathematics. Dates at which comprehensive examinations in lieu of theses are given are determined by the department or division concerned. Results on comprehensive examinations must be reported to the Office of the Graduate Division by the department or division. Students majoring in education must pass the comprehensive examination to become eligible to take Education 295A-295B, the writing seminars required in their major concentration, or Education 299, the thesis course.

#### 7. FINAL APPROVAL:

The student's graduate program of study as approved by the graduate adviser and the Graduate Council must be completed before the degree can be granted. An application for graduation must be filed in the Office of the Graduate Division four weeks in advance of the expected date of graduation.

## MASTER OF SCIENCE DEGREE

### GENERAL REQUIREMENTS

Graduate programs leading to the master of science degree are designed to increase the professional competence of a student in his chosen occupation. They provide an opportunity for advanced and concentrated work in a specialized field and for training in the methods and techniques of research, thus developing the student's ability for independent self-directed study. The specific requirements for specialization within the major are stated in Part Three, Fields of Study and Courses of Instruction.

#### 1. COURSE AND UNIT REQUIREMENTS:

- A. A minimum of 30 units in approved courses numbered 100 or above and the satisfactory completion of six units of directed field experience, course 296, as described below. All 30 or 36 units must have been earned within the seven-year period immediately preceding the date when all of the requirements for the degree are completed. In unusual circumstances, the student may petition for an extension of time. A student may be required to validate courses outside the seven-year period for recency by comprehensive examinations over their content or by substituting other approved courses (already completed or to be completed) for out-dated courses.
- B. A minimum of 12 units must be in 200-numbered courses, exclusive of course 296.
- C. Minimum requirements for concentration in a major are 24 units of approved 100- and 200-numbered courses.
- D. A minimum grade point average of 3.0 (B) on all postgraduate work taken at this college for the master's degree, including courses taken to remove deficiencies. Credit for courses in which a grade lower than "C" is received cannot be used to satisfy requirements for advanced degrees.
- E. Twelve units of work must be earned after advancement to candidacy.
- F. Not more than a total of 6 units may be in special study courses 199 and 298.

#### 2. RESIDENCE:

Applicants must complete at least 24 units of their programs in residence at San Diego State College.

#### 3. DIRECTED FIELD EXPERIENCE:

Each department offering the master of science degree, except in mechanical engineering, will determine whether an applicant's present or previous experience may be substituted for all or part of the six units of directed field experience at the date that the student applies for graduate study in the department. If a department decides that the applicant's previous experience is acceptable, it notifies the Office of the Graduate Division of the decision, stating (1) the place of employment, (2) the type of work performed, and (3) the length of time employed. The official program of the applicant will then be adjusted to show a requirement of 30 units for graduation.

If an applicant's previous experience cannot be accepted as a substitute for the entire six units of directed field experience, or if the student is without experience, the official program must show a total of more than 30 required units for graduation including course 296, Directed Field Experience. The department will make provision for the scheduling of this course as a part of its regular offerings, and will have the student enroll officially in it. Arrangements must be made with local government or social agencies or industries whereby the proper field experiences may be obtained. The department will determine the type of field experience, supervise the work being done by the student at the place where he is obtaining the field experience, require from

the student progress and/or work reports as appropriate, and report the credit earned to the Office of the Registrar at the close of the semester or summer session. The symbol "Cr" (credit) is used in reporting the satisfactory completion of course 296.

#### 4. ADVANCEMENT TO CANDIDACY:

In addition to holding regular graduate standing in the Graduate Division, a student desiring the master's degree must file a complete graduate program of study, approved by his graduate adviser, in the Office of the Graduate Division. A student will be considered for advancement to candidacy after (a) he has earned at least 12 units in his graduate program at this college with a minimum grade point average of 3.0 (B) or six units for graduates of San Diego State College, provided his undergraduate grade point average was at least 2.75; (b) he has removed all undergraduate deficiencies and has completed all departmental or divisional requirements; (c) he has obtained satisfactory scores on the Graduate Aptitude Examination and any required departmental examinations; (d) he has been recommended for advancement to candidacy by the department or division concerned; and (e) final approval has been given by the Graduate Council. Written notification of advancement to candidacy will be sent to the student from the Office of the Graduate Division.

#### 5. EXAMINATIONS:

Every student desiring the master's degree must take the Graduate Aptitude Examination prior to or during his first semester in residence. Certain departments require additional examinations as listed in Part Three of this bulletin under the major field or area of concentration.

#### 6. THESIS:

Plan A, involving a thesis, is required for the master of science degree in business administration, psychology, and public administration. A thesis is not required for the degree in chemistry, mathematics, mechanical engineering, or physics; however, subject to the department's approval, a student may elect Plan A.

Plan B requires the comprehensive examination in lieu of a thesis. (Refer to departmental or divisional requirements in Part Three of this bulletin under the major field or area of concentration, for further information.)

#### 7. FINAL APPROVAL:

The student's graduate program of study as approved by the graduate's adviser and the Graduate Council must be completed and an application for graduation must be filed in the Office of the Graduate Division four weeks in advance of the expected date of graduation.

## ADVANCED CREDENTIALS

### GENERAL SECONDARY CREDENTIAL

The general secondary credential authorizes its holder to teach any subject in grades 7 through 14. It requires a satisfactory major and minor in subjects commonly taught in high school, and specific requirements in professional education. It requires a full year of graduate work.

#### ADMISSION REQUIREMENTS

The requirements for admission to the credential program are in addition to the requirements for admission to the college. Students are admitted to teacher education for the general secondary credential on the basis of the following requirements:

1. A satisfactory score on the college aptitude test taken at the college.
2. Competence in the areas of English, arithmetic, handwriting, reading, and spelling, as evidenced by satisfactory scores on the fundamentals test given at the college.
3. Basic subject area background as evidenced by satisfactory scores on the general culture test given at the college.
4. Quality of speech habits and voice control as evidenced in interviews and oral speech test given at the college.
5. Adequate health status as evidenced by a health examination given for teaching credential candidates.
6. Interviews with representatives of the Teacher Education Admissions Committee, and with a faculty representative of the department in which the student is a major.
7. A minimum grade point average of 2.5 in all college work, and 2.75 in the major teaching subject.
8. An official evaluation and program approved by the authorized departmental representative in the student's major field, and by a representative in secondary education.

#### COURSE REQUIREMENTS

For the general secondary credential, students must satisfy course requirements in a major subject field, in a minor subject field, in general education, and in professional education courses. In addition, a two-unit course in Health Education for Teachers (Health Education 151) is required. Complete requirements are outlined in the regular college catalog.

#### The Major Field

Majors for the credential are offered in the following subjects: art, business education, English, French, health education, homemaking education, industrial arts, language arts, life science and general science, mathematics, music, physical education, physical science and general science, psychology (requiring two minors), romance languages, social science, Spanish, and speech arts.

Majors for the credential usually require as much as 40 semester units, depending upon subject fields, including both undergraduate and graduate (200-numbered) courses. In most cases, approximately four to six 200-numbered units are required as part of the major.

#### The Minor Field

Teaching minors for the credential are offered in the following subjects: art, business education, economics, English, French, health education, history, homemaking education, industrial arts, life science and general science, mathematics, music, physical education, physical science and general science, social science, Spanish, and speech arts. Teaching minors usually require 21 to 27 semester units, including lower division and upper division work. Graduate courses (200-numbered) are not required in the minor.

### General Education

The credential requires completion of at least 40 semester units in general education with a minimum of six units in each of the following areas: (1) science and mathematics, (2) practical and fine arts, such as art, music, homemaking, health education, physical education, industrial arts, and similar fields, (3) social studies, and (4) the communicative arts, such as languages, literature, speech arts, and similar fields. Courses offered in fulfillment of this general education requirement may also be applied toward the fulfillment of major and minor requirements, provided the courses are within the same subject field as the major and minor.

### Professional Education

For all general secondary candidates, regardless of major or minor subject fields, the following professional education courses, or their equivalents, are required either as undergraduate or graduate units: Education 100, The Secondary School (4 units); Education 110, Development and Learning (4 units); Education 120, The Teaching Process (4 units); Education 180 or 316A, Directed Teaching—Secondary (6 units); Education 121, Methods and Materials of Instruction and Audio-visual Aids (4 units); Education 230, Guidance Problems in Secondary Education (3 units); and Education 250, Curricular Problems in Secondary Education (3 units). In addition, Health Education 151, Health Education for Teachers (2 units) is required.

### ADVANCED STANDING

Students who hold the bachelor's degree, who may have graduate work applicable to the credential, may have their credits evaluated to determine additional needed requirements by applying for an official evaluation at the Evaluations Section, Admissions Office, Administration Building of the college.

### RELATIONSHIP TO THE MASTER OF ARTS DEGREE

Students may fulfill master's degree for teaching service requirements and the general secondary credential concurrently. The total number of units required will depend upon the adequacy of the undergraduate work in the major and minor fields, and in professional education. Students working for both the credential and the master's degree concurrently may choose as master's degree majors either the subject field concentration of their major or one of the concentrations in education.

### ADMINISTRATION AND SUPERVISION CREDENTIALS

Students may earn credentials in elementary administration, secondary administration, and supervision. A person who holds an administration credential is authorized to serve as principal, vice principal, or other administrative officer as assigned by boards of education on the grade level designated by the credential. A person who holds the supervision credential is authorized to supervise the teaching of any subject on the grade level designated by the basic credential.

The elementary administration credential requires the completion of 30 semester hours of upper division or graduate work beyond the A.B. degree or general elementary credential. The secondary administration credential requires 18 semester hours of upper division or graduate work in addition to completion of requirements for the general secondary credential. The supervision credential requires the completion of 24 semester hours of upper division or graduate work concurrent with, or subsequent to, public school service.

### ADMISSION REQUIREMENTS

Students desiring to earn any of the administration or supervision credentials must be admitted to the credential program prior to enrollment in Education 262, 263, 264, 265, 266, 267, or 316B. Admission is granted on basis of the following requirements:

1. *Academic ability* as indicated by (a) regular graduate standing (refer to the section of this bulletin on Admission to the Graduate Division for specific information), (b) satisfactory scores on the Graduate Aptitude Examination (not required of students who hold the master's degree from an accredited college or university), and (c) a grade average of B on all graduate work applicable to credential requirements.

2. *Personal qualities* as evidenced in (a) a minimum of two interviews with members of the Administrative Studies Committee, (b) data recorded by the student

on a personal data sheet, and (c) class participation during initial graduate course work.

3. *Professional competence* as evidenced in present or past teaching position by (a) leadership in education, (b) service to the profession, and (c) success as a teacher (minimum of two years of successful teaching experience).

4. *Previous preparation* as evidenced by an official evaluation for the credential desired, obtained from the Evaluations Section, Admissions Office of the college. A general elementary or general secondary teaching credential is a prerequisite.

Students interested in administration or supervision credentials should apply for admission to the credential program at their first opportunity. Application forms and additional information are available in the Office of the Coordinator of Administrative Studies, Education Division.

### COURSE REQUIREMENTS

Courses required for administration and supervision credentials are usually available in evening sessions and summer sessions. Applicable course offerings are more limited during regular day sessions.

#### Elementary Administration

*Prerequisites:* 5 units to include Education 101, History and Philosophy of Education; and Education 151, Measurement and Evaluation in Elementary Education; and the general elementary teaching credential.

*Credential requirements:* 21 units to include Education 240, Curriculum Construction and Evaluation in Elementary Education; Education 115, Guidance in Elementary Education; Education 260, Federal, State, County and City School Organization and Administration; Education 270, School Finance, Business Administration and Law; Education 262, The Organization and Administration of Elementary Schools; Education 264, Elementary School Supervision; and either Education 266, Field Experience in Elementary School Administration and Supervision, or Education 316B, Directed Internship.

*Additional courses for the master of arts degree:* 12-15 units to include (1) Education 290, Procedures of Investigation and Report; (2) one of the following: Education 205, History of Education; Education 206, Philosophy of Education; Education 207, Educational Sociology; or Education 220, Advanced Educational Psychology; (3) Education 278, Educational Leadership; and (4) either Education 295A-295B, Seminar, or Education 299, Thesis.

#### Secondary Administration

*Prerequisites:* 10-14 units to include Education 101, History and Philosophy of Education, or Education 100, The Secondary School; Education 250, Curricular Problems in Secondary Education; Education 152, Measurement and Evaluation in Secondary Education, or Education 120, The Teaching Process; and Education 230, Guidance Problems in Secondary Education; and the general secondary teaching credential.

*Credential requirements:* 15 units to include Education 260, Federal, State, County and City School Organization and Administration; Education 270, School Finance, Business Administration and Law; Education 263, The Organization and Administration of Secondary Schools; Education 265, Secondary School Supervision; and either Education 267, Field Experience in Secondary School Administration and Supervision, or Education 316B, Directed Internship.

*Additional courses for the master of arts degree:* 12-15 units to include (1) Education 290, Procedures of Investigation and Report; (2) one of the following: Education 205, History of Education; Education 206, Philosophy of Education; Education 207, Educational Sociology; or Education 220, Advanced Educational Psychology; (3) Education 278, Educational Leadership; and (4) either Education 295A-295B, Seminar, or Education 299, Thesis.

#### School Supervision

*Prerequisites:* The holding of the appropriate basic teaching credential (general elementary or general secondary).

*Credential requirements:* 24 units of postgraduate work concurrent with or subsequent to public school service to include (1) Education 240, Curriculum Construction and Evaluation in Elementary Education, or Education 254, Advanced Problems in Secondary School Instruction; (2) Education 264, Elementary School Supervision, or Education 265, Secondary School Supervision; (3) Education 278,

Educational Leadership; (4) Education 240, Curriculum Construction and Evaluation in Elementary Education, or Education 250, Curricular Problems in Secondary Education; (5) Education 266, Field Work in Elementary School Administration and Supervision, or Education 267, Field Work in Secondary Administration and Supervision, or Education 316B, Directed Internship; (6) Education 262, The Organization and Administration of Elementary Schools, or Education 263, The Organization and Administration of Secondary Schools; (7) Education 270, School Finance, Business Administration, and Law; and (8) Education 207, Educational Sociology, or Education 260, Federal, State, County and City School Organization and Administration.

*Additional courses for the master of arts degree:* 6-9 units to include (1) Education 290, Procedures of Investigation and Report; (2) Education 295A-295B, Seminar, or Education 299, Thesis.

#### ADVANCED STANDING

Students who have already completed courses which may apply to these credentials may have their credits evaluated to determine needed additional work to qualify for any of the credentials by applying for an official evaluation at the Evaluations Section, Admissions Office, Administration Building of the college.

#### EXPERIENCE

Before a student can be granted an administration credential, he must verify a minimum of two years of successful teaching experience at the appropriate grade level. For the supervision credential, he must verify desirable personal characteristics for supervision by recommendations from two persons associated with him in a school administrative or supervisory relationship within the last five years, and must verify a minimum of five years of successful public school service.

#### RELATIONSHIP TO THE MASTER OF ARTS DEGREE

Students who fulfill admission requirements for administration or supervision credential programs will need to meet additional requirements for advancement to candidacy for the master's degree. (Refer to this section of this bulletin on master of arts degree programs for further information.) Students who meet course requirements for the credential will be required to complete additional course work to fulfill master's degree requirements, as indicated under the sections above on additional courses for the master of arts degree.

#### GENERAL PUPIL PERSONNEL SERVICES CREDENTIAL

The credential for general pupil personnel services authorizes the holder to perform any pupil personnel services in the fields of child welfare and attendance, psychology, psychometry, and pupil counseling, in elementary and secondary schools, except for the specialized function of testing for special class placement, which can be performed only by those who have completed the school psychometrist specialization, and only then if they are working under the supervision of one holding the school psychologist authorization. The special authorization of "school psychologist" is an extension of the general credential, requiring a second graduate year of applicable work.

In general, counselors and other pupil personnel workers who are employed more than half time are required to hold the general pupil personnel services credential.

#### ADMISSION REQUIREMENTS

Students who plan to complete requirements for this credential are expected to be formally admitted to the credential program prior to the completion of the first 15 units of the program. Admission is granted on basis of the following requirements:

1. *Academic ability* as indicated by (a) regular graduate standing (refer to the section of this bulletin on Admission to the Graduate Division for specific information), (b) satisfactory scores on the graduate aptitude examination (not required of students holding the master's degree from an accredited college or university), and (c) a minimum grade point average of 3.0 (B) on all postgraduate work, including at least 12 units on the credential program.

2. *Personal qualities* as evidenced in interviews and other personal data.

3. *Professional background and experience* as described in a paper of five pages or less, which includes a self-evaluation as a guidance worker.

4. *Previous preparation* as evidenced by an official evaluation for the credential obtained from the Evaluations Section, Admissions Office of the college.

Applicants for the master's degree must meet additional requirements. (Refer to the section of this bulletin on master of arts degree for further information.) Students interested in this credential should apply for admission to the program at their first opportunity. Application forms and additional information are available in the Office of the Coordinator of Guidance Studies, Education Division.

#### COURSE REQUIREMENTS

To satisfy the requirements for the credential, a student must complete a minimum of 30 units of postgraduate work which is composed of field experiences and classwork. All students are required to complete a general core of work and one specialized area selected from pupil counseling (elementary or secondary), child welfare and attendance, or school psychometry. Students desiring the school psychology authorization must first complete the specialized area in psychometry, and then complete an additional 30 units of specialized work in psychology and educational psychology.

Courses required for this credential are usually available in evening sessions and summer sessions. Applicable course offerings are more limited during the regular day sessions.

#### Prerequisite

A minimum of 12 semester units of education, including growth and development, educational psychology, and measurement and evaluation, is prerequisite to the program.

#### The General Core Area

For students planning to specialize in pupil counseling (elementary or secondary) or in child welfare and attendance, the general core area consists of the following courses: either Education 115, Guidance in Elementary Education (3 units), or Education 230, Guidance Problems in Secondary Education (3 units); Psychology 104A, Statistical Methods in Psychology (3 units); Education 231, Techniques of Pupil Appraisal (3 units); Education 170, Exceptional Children (3 units); Education 233, Guidance Counseling Techniques (3 units); and Education 234, Administration of Pupil Personnel Services. Students planning to specialize in school psychometry or school psychology are advised to substitute Psychology 105, Psychological Testing, for Education 231, above, and to add to the general core area, Psychology 151, Introduction to Clinical Appraisal.

#### Areas of Specialization

For each of the specialized areas, a minimum of 9 to 15 units is required, as indicated below:

*School Counseling—Elementary:* Education 247, Advanced Diagnosis and Treatment of Learning Difficulties (3 units); and Education 316B, Directed Internship—Counseling (6 units).

*School Counseling—Secondary:* Education 232, Problems in Vocational Guidance (3 units); and Education 316B, Directed Internship—Counseling (6 units).

*Child Welfare and Attendance:* Sociology 280, Principles of Social Case Work (3 units); Sociology 281, Field Work in Social Case Work (3 units); and Education 316B, Directed Internship—Child Welfare and Attendance (6 units).

*School Psychometry:* Psychology 204, Individual Psychological Testing (3 units); Psychology 205, Advanced Mental Testing (3 units); Education 220, Advanced Educational Psychology (3 units); and Education 316B, Directed Internship (6 units).

*School Psychologist:* Requires completion of the general core area, the specialization area for school psychometry listed above, and an additional 30 units of specified graduate work.

#### ADVANCED STANDING

Students who have already completed graduate work may have their credits evaluated to determine additional work needed for the credential by applying for an official evaluation at the Evaluations Section, Admissions Office of the college.

#### EXPERIENCE

Before a student can be granted the credential, he must verify a minimum of two years of successful teaching experience. Under certain conditions, students may

substitute two years of supervised field experience in school social work, school psychometry, or school psychology, of which at least one year must have been in a public school.

#### RELATIONSHIP TO THE MASTER OF ARTS DEGREE

Students who fulfill admission requirements for the credential program will need to fulfill additional requirements for advancement to candidacy for the master's degree. (Refer to the section of this bulletin on master of arts degree for further information.) Students who complete the course requirements for the credential will usually have completed all requirements for the master's degree in education with a concentration in pupil personnel services, except for Education 290A-290B, Procedures of Investigation and Report, and Bibliography (3 units) and either Education 295A-295B, Seminar (6 units) or Education 299, Thesis (3 units).

#### CREDENTIAL FOR TEACHING EXCEPTIONAL CHILDREN

The credential for teaching exceptional children is available with two areas of concentration: teaching of the mentally retarded, and speech correction and lip reading. The first authorizes the holder to teach special classes designed for mentally retarded pupils in elementary and secondary schools, and the second authorizes the teaching of special classes for elementary or secondary pupils who need speech correction or training in lip reading.

#### ADMISSION REQUIREMENTS

Students desiring to complete requirements for this credential must be formally admitted to the credential program prior to the completion of 15 units of the required courses. Admission is granted on the basis of the following requirements:

1. *Academic ability* as indicated by (a) a grade point average on all college work of 2.2 and (b) satisfactory completion of a basic credential program or admission to same.
2. *Personal qualities* as evidenced in interviews with at least two members of the Special Education Studies Committee of the Education Division.
3. *Professional background and experience* as described in a paper of five pages or less, which includes a self-evaluation as a teacher of exceptional children.
4. *Previous preparation* as indicated by an official evaluation for the credential obtained from the Evaluations Section, Admissions Office of the college.

Students interested in the credential for teaching exceptional children should apply for admission to the program at their first opportunity. Admission forms and additional information are available in the Office of the Coordinator of Special Education, Education Division.

#### COURSE REQUIREMENTS

Course work leading to the credential for teaching exceptional children is usually available in regular day sessions, evening sessions, and summer sessions. Some of the required courses are usually offered only in evening and summer sessions.

#### Prerequisite

A student desiring this credential must hold, or concurrently earn, a general elementary, junior high school, or general secondary credential.

#### General Core Subjects for All Students

Thirteen units of subjects in a general core are required of all students for either area of concentration: teaching of the mentally retarded, or speech correction and lip reading. The following courses must be completed: Education 170, Exceptional Children; Education 115, Guidance in the Elementary School, or Education 230, Guidance Problems in Secondary Education, or Psychology 152, Introduction to Methods of Counseling; Speech Arts 170, Speech Development; and Education 182 or Education 316B, Directed Internship in the field of specialization, or one year of verified successful teaching experience in the area of specialization.

#### Areas of Specialization

**Teaching of the Mentally Retarded.** In addition to the general core of 13 units, a minimum of 11 units from the following courses, plus electives to bring the total units for the credential to a minimum of 24: Education 171, Curriculum and

Methods of Teaching the Mentally Retarded, or Education 172, Workshop for Teachers of the Mentally Retarded; Art 10B, Arts and Crafts, or Education 172, Workshop for Teachers of Mentally Retarded when taken for six units; and Psychology 109, Mental Deficiency.

**Speech Correction and Lip Reading.** In addition to the general core of 13 units, a minimum of 21 units to include the following courses: Speech Arts 174, Principles and Methods of Speech Correction; Speech Arts 176, Stuttering and Neurological Disorders; Speech Arts 177, Aural Rehabilitation; Speech Arts 178, The Teaching of Lip Reading; Speech Arts 179, Clinical Methods in Speech Correction; and Speech Arts 180, Field Work in Clinical Practice in Speech Correction.

#### ADVANCED STANDING

Students who have completed applicable courses, either graduate or undergraduate, may have their credits evaluated to determine needed additional course requirements by applying for an official evaluation at the Evaluations Section, Admissions Office of the college.

#### RELATIONSHIP TO THE MASTER OF ARTS DEGREE

Students who meet admission requirements for the credential program will need to meet additional requirements for advancement to candidacy for the master's degree. (Refer to the section of this bulletin on the master of arts degree for further information.) Students who fulfill the course requirements for the credential will be required to complete additional courses for the master's degree, including Education 290A-290B, Procedures of Investigation and Report, and Bibliography (3 units) and Education 295A-295B, Seminar (6 units) or Education 299, Thesis (3 units).

#### JUNIOR COLLEGE CREDENTIAL

The college offers a program leading to the junior college credential. Interested persons should consult the Coordinator of Secondary Education regarding admission requirements. The requirements for the credential include the holding of a master's degree and a minimum of 10 units of specified professional education courses.

### PART THREE

## FIELDS OF STUDY AND COURSES OF INSTRUCTION

In the following pages describing the opportunities for graduate study at San Diego State, the specific departmental requirements for advanced degrees are stated in detail and all graduate programs will be prepared in conformity with these requirements. 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 prior to the date of registration of each semester, or the summer session bulletin which is available prior to the opening of summer session.

The college 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.

Graduate level (200-numbered) courses are open to students with regular graduate standing in the Graduate Division. Unclassified graduate students must obtain the permission of the instructor and the Dean of Graduate Studies before they may enroll in a graduate level (200-numbered) course.

In addition to specify the requirements for certain graduate degrees and the general requirements for the degree of a master's degree in the field of education, the student's progress program must include either a thesis or a research project as follows:

**SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS**

A minimum of 24 units in 200-level courses is required below a master's degree program in the field of education. In addition to the 200-level courses, the student must complete a thesis or a research project in the field of education. The thesis or research project must be approved by the instructor and the Dean of Graduate Studies. The thesis or research project must be submitted to the Graduate Division for review and approval. The thesis or research project must be defended in a public hearing before a committee of faculty members. The thesis or research project must be approved by the committee and the Dean of Graduate Studies. The thesis or research project must be submitted to the Graduate Division for review and approval. The thesis or research project must be defended in a public hearing before a committee of faculty members. The thesis or research project must be approved by the committee and the Dean of Graduate Studies.

**SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL**

Application for the general secondary credential requires a minimum of 30 units in 200-level courses in the field of education. In addition to the 200-level courses, the student must complete a thesis or a research project in the field of education. The thesis or research project must be approved by the instructor and the Dean of Graduate Studies. The thesis or research project must be submitted to the Graduate Division for review and approval. The thesis or research project must be defended in a public hearing before a committee of faculty members. The thesis or research project must be approved by the committee and the Dean of Graduate Studies.

**ADVANCEMENT TO CANDIDACY**

For advancement to candidacy for the degree of a master's degree in the field of education, the student must complete a thesis or a research project in the field of education. The thesis or research project must be approved by the instructor and the Dean of Graduate Studies. The thesis or research project must be submitted to the Graduate Division for review and approval. The thesis or research project must be defended in a public hearing before a committee of faculty members. The thesis or research project must be approved by the committee and the Dean of Graduate Studies.

## ART

### GENERAL INFORMATION

The Department of Art offers graduate work leading to the master of arts degree with a major in art and to the master of arts degree for teaching service with a concentration in art. The department also offers a major and a minor in art for the general secondary credential.

The Art Department is equipped to offer advanced work to graduate students in the fields of painting, sculpture, ceramics, printmaking, and the history of art. In addition to the excellent equipment of the Fine Arts Building at the college, the Fine Arts Gallery of San Diego and the Museum of Archeology, both located in Balboa Park, offer valuable original materials as well as specialized libraries for research in those fields.

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under "Admission to the Graduate Division." 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 semester's work in the general history of art, before he will be permitted to begin work on the 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 through an examination of examples of the student's undergraduate work. 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 regular graduate standing may enroll for courses, under guidance of the department, in order to meet the standard requirements.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include either a major or a concentration defined as follows:

**Major:** A minimum of 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 200-numbered courses. Art 290A, Art 292A, and Art 299 are required courses. Education 290A is required of all students electing to write a thesis instead of completing a creative project in art. Prior to the completion of all course requirements, students will be required to pass a comprehensive examination covering the fields of History of Art of Western Civilization and Principles of Art Appreciation and Design.

**Concentration:** A minimum of 18 units in art from courses listed below as acceptable on master's degree programs in art, of which at least 10 units must be in 200-numbered courses. Art 290, Art 299, and Education 290A are required courses. (Students must also satisfy the requirements for a California school service credential.)

### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete a minimum of four units of 200-numbered courses in art for the teaching major in art.

### ADVANCEMENT TO CANDIDACY

For information on general requirements for advancement to candidacy, refer to Part Two of this bulletin, Master of Arts Degree-General Requirements.

## FACULTY

Department Chairman: E. G. Jackson  
Graduate Advisers: Major, E. G. Jackson; Teaching, J. D. Swiggett  
General Secondary Credential Adviser: E. G. Jackson  
Professors: E. G. Jackson, M.A.; G. N. Sorenson, M.A.; J. D. Swiggett, M.F.A.  
Associate Professors: J. H. Dirks, A.B.; Ilse H. Ruocco, M.A.  
Assistant Professors: Marybelle S. Bigelow, M.A.; Paul A. Lingren, M.A.; Martha W. Longenecker, M.F.A.; Jo Ann L. Tanzer, M.A.; Robert Wallace, D.Litt.

## COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN ART

### UPPER DIVISION COURSES

- |  |   |
|--|---|
| 106A-106B. Printmaking (2-2)             | 115. Advanced Life Drawing and Painting (2) |
| 106C. Illustration (2)                   | 116. Advanced Painting (2)                  |
| 107. Color and Design in Merchandise (2) | 117. Advanced Sculpture (2)                 |
| 111A-111B. Industrial Design (2-2)       | 119A-119B-119C. Ceramics (2-2-2)            |
| 112A-112B. Design and Composition (2-2)  | 120A-120B. Advanced Design (2-2)            |
| 113. Advanced Furniture Design (2)       | 195A-195B. Interior Design (2-2)            |
|  | 199. Special Study (1-6)                    |

### Anthropology

- 151A. The North American Indian (3)  
151B. Indian Civilization of Middle America (3)  
172. Indian Cultures of the Southwest (3)

### Philosophy

136. The Philosophy of Art (3)

### Psychology

175. Theories of Learning (3)

### GRADUATE COURSES

216. Seminar in Creative Painting (3)  
Prerequisites: Art 112A, 112B, and two units of Art 116; or four units of Art 116. Aesthetic organization of selected visual subject matter in the medium of colors in oils. May be repeated to a maximum of 6 units.
217. Seminar in Creative Sculpture (3)  
Prerequisites: Four units in Art 117.  
Aesthetic organization of selected subject matter in the media of sculpture. May be repeated to a maximum of six units.
219. Seminar in Creative Crafts (3)  
Prerequisites: Six units completed in upper division courses in sculpture or ceramics or a combination of the two subjects.  
Advanced creative work in selected craft media. May be repeated to a maximum of six units.
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.
- 292A-292B. Seminar in Art History (3-3)  
Prerequisites: Art 50 and 150 or equivalents.  
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.
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 or Project (3)  
Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Guidance in the preparation of a thesis or project for the master's degree.

## BUSINESS ADMINISTRATION

### GENERAL INFORMATION

The Division of Business Administration offers graduate study leading to the master of science degree in business administration. This program with concentrations in accounting, business management, finance, industrial management, marketing, insurance, and personnel management is offered to equip business leaders for the complicated and diverse responsibilities they must accept in the future. It is designed to provide not only breadth of preparation, but also intensive professional training in several special fields. Close contacts with large and small firms, both local and national, facilitate the type of research projects available to graduate students in business administration. The demand by industry and government for students with graduate training in business administration is a growing one; such students command a premium upon graduation.

Students who have a degree in engineering and who plan to serve in an executive capacity will find it advisable to complete the master of science degree in business administration. The usual business administration prerequisites are necessary, but may be taken during the undergraduate program. Those desiring the combination of an undergraduate major in engineering to be followed by the master of science degree with specialization in the fields of industrial or business management should obtain the assistance of an adviser in planning their program at the beginning of their undergraduate college work. Information may be obtained from the Coordinator of Industrial Management in the Division of Business Administration.

For a description of the program leading to the master of arts degree in business education, refer to the section of this bulletin on Business Education, which follows this section.

### ADMISSION TO REGULAR GRADUATE STANDING

In addition to the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division, the Division of Business Administration requires that a student have a grade point average on all college work attempted of 3.0 (B) up to the time he applies for admission to the Graduate Division.

The Division may also recommend for regular graduate standing those whose capacity for graduate study is demonstrated by superior scores upon the following two examinations which are required of all applicants:

1. Graduate Aptitude Examination. (Appointments are made at the Office of the Graduate Division.)
2. Admission Test for Graduate Study in Business. (The student should arrange to take this test prior to enrolling in the college. Details concerning this test, fees, and examination dates may be obtained from the Test Officer, San Diego State; or by writing to the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey.)

The division will decline to recommend for regular graduate standing a student who fails to qualify under these standards.

### Course Prerequisites

- Business Administration 1A-1B, Principles of Accounting (6 units)
- Economics 1A-1B, Principles of Economics (6 units)
- Business Administration 30A-30B, Business Law (6 units)
- Business Administration 134, Business and Industrial Management (3 units)
- Business Administration 150, Marketing Principles (3 units)
- Economics 140, Statistical Methods (3 units)
- Business Administration 131, Corporation Finance, or Economics 135, Money and Banking (3 units)

### SPECIFIC DIVISIONAL REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of science degree, described in Part Two of

this bulletin under master of science degree, the student must complete at least 12 units of 200-numbered courses. The 30 to 36 required units of postgraduate work must include the following courses:

	Units
Business Administration 299, Thesis	3
200-numbered courses in Business Administration or Economics	9
Total required in the 200-series	12
Additional courses in the 100- or 200-series (maximum of 6 units outside of Business Administration or Economics; to include Economics 100A or 100B, unless student has had other advanced work in Economics)	18
Business Administration 296, Directed Field Experience (required only of students who do not have satisfactory experience in their occupational area)	0-6
Total number of units required	30-36

### ADVANCEMENT TO CANDIDACY

In addition to the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under master of science degree, the Division of Business Administration also requires a satisfactory score on the admission test for graduate study in business before recommending an applicant for advancement to candidacy.

### SCHOLARSHIPS AND ASSISTANTSHIPS

Teaching assistantships are available for a limited number of outstanding students. Application should be made to the chairman of the department concerned. Refer to Part One of this bulletin for list of scholarships available to graduate students.

### FACULTY

Division Chairman: Charles W. Lamden

Department Chairmen:

- Accounting Department: V. E. Odmark
- Business Law, Real Estate, and Insurance Department: R. K. Castetter
- Management Department: D. W. Belcher
- Marketing Department: G. K. Sharkey

Coordinator of Graduate Studies: Simon Reznikoff

Graduate Advisers:

- Accounting: E. P. Brown, C. W. Lamden, V. E. Odmark
- Business Management and Industrial Management: O. Galbraith, G. L. Hodge, K. E. Larsen, A. C. Pierson, Simon Reznikoff
- Finance: E. P. Brown, G. K. Sharkey
- Insurance: R. K. Castetter
- Marketing: G. K. Sharkey, E. A. Hale
- Personnel Management: D. W. Belcher, Frances B. Torbert

Professors: D. W. Belcher, Ph.D.; E. P. Brown, M.A., P.A.; C. W. Lamden, Ph.D., C.P.A.; V. E. Odmark, Ph.D., P.A.; Frances Torbert, M.A.; W. H. Wright, Ph.D.

Associate Professors: R. K. Castetter, LL.M.; G. L. Hodge, Ph.D.

Assistant Professors: W. F. Barber, M.B.A.; Arthur Brodshatzer, M.B.A., C.P.A.; James Chapman, Ph.D.; L. J. Dodds, M.B.A., C.P.A.; D. I. Fellers, M.S.; D. B. Ferrel, M.B.A., C.P.A.; Oliver Galbraith, M.B.A.; E. A. Hale, Ph.D.; W. H. Hippaka, J.D.; K. E. Larsen, M.A.; D. F. Lawson, M.S.; Richard McCord, M.B.A.; L. H. Peters, M.B.A.; A. C. Pierson, M.B.A.; Simon Reznikoff, LL.B.; W. R. Robinson, M.B.A.; G. K. Sharkey, Ph.D.; L. J. Shuster, M.B.A.; A. L. Sbrich, M.B.A.; D. E. Williamson, M.B.A.

**COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS  
IN BUSINESS ADMINISTRATION**

**UPPER DIVISION COURSES**

- |  |   |
|--|---|
| 100. Intermediate Accounting (3)                                   | E-142. Manufacturing and Tooling Administration (3) (Special permission required) |
| 101. Advanced Accounting (3)                                       | 143. Systems and Procedure Analysis (3)   |
| 102. Cost Accounting (3)   | 144. Personnel Management (3)   |
| 103. Advanced Cost Accounting (3)                                  | 145. Human Relations in Management (3)  |
| 106. Income Tax Accounting (3)                                     | 146. Wage and Salary Administration (3)   |
| 107. Advanced Income Tax Accounting (3)                            | 147. Supervisory Staff and Employee Training (3)                                  |
| 108. Governmental Accounting (3)                                   | 148. Problems in Personnel Management (3)   |
| 112. Auditing (3)  | 149. Personnel Management Laboratory (1)  |
| 113. Advanced Auditing (3)   | 150. Marketing Principles (3)   |
| 114. Accounting Systems (3)  | 151. Problems of Marketing Management (3)   |
| 115. Financial Statements (3)                                      | 152. Retailing Principles (3)   |
| 116. Internal Auditing and Controlling (3)                         | 153. Advertising Principles (3)   |
| 119. C.P.A. Review (3)   | 154. Advertising Problems (3)   |
| 120. General Insurance (3)   | 155. Public Relations (3)   |
| 121. Property and Casualty Insurance (3)                           | 156. Radio and Television Station Management and Advertising (3)                  |
| E-123A-B. C.P.C.U. Preparation (3-3) (Special permission required) | 157. Market Research (3)  |
| 124. Life Insurance Principles and Practices (3)                   | 159. Color and Design in Merchandise (2)  |
| 125. Life Insurance Underwriting (3)                               | 160. Merchandise Analysis (3)   |
| E-126A-B. C.L.U. Preparation (3-3) (Special permission required)   | 161. Traffic Management (3)   |
| 128. Credits and Collections (3)                                   | 162. Industrial Marketing (3)   |
| 129. Credit Management (3)   | 163. Sales Management (3)   |
| 130A-130B. Advanced Business Law (3)                               | 170. Real Estate Principles and Practices (3)                                     |
| 131. Corporation Finance (3)                                       | 171. Law of Real Property (3)   |
| 133. Investments (3)   | 172. Property Management (3)  |
| 134. Business and Industrial Management (3)                        | 173. Real Estate Finance (3)  |
| 135. Production Planning and Control (3)                           | 174. Real Estate Appraisal Theory (3)   |
| 136. Motion and Time Study (3)                                     | 175. Appraisal of Real Estate (3)   |
| 137. Plant Layout and Materials Handling (3)                       | 199. Special Study (1-6)  |
| 138. Industrial Purchasing (3)                                     |   |
| 139. Quality Control (3)   |   |
| 140. Organization and Management Theory (3)                        |   |
| 141. Electronic Data Processing (3)                                |   |

**GRADUATE COURSES**

200. **Seminar in Accounting Theory (3)**  
Current trends in accounting in relation to the historical development of accounting principles and theory.
220. **Seminar in Industrial Organization and Management (3)**  
Analysis of selected topics in industrial organization and management directed to the development of a theory of organization and to an understanding of the operation of industrial enterprise. Emphasis on planning, coordination, leadership, and decision-making. Prerequisites: Business Administration 134 and permission of instructor.
221. **Seminar in Personnel Management (3)**  
Contemporary problems in personnel and industrial relations. Investigations by seminar members of aspects of human factors in management, labor relations, and other personnel-related topics. Case problems involving such areas as communication, participation, status, control, and effects of technological changes. Prerequisites: Business Administration 144 and Economics 150; and permission of instructor.

222. **Seminar in Finance (3)**

Principles and problems involved in financing business firms from both internal and external sources. Stressing of student research and knowledge of literature in the field of finance. Prerequisites: Business Administration 131 and/or Economics 135; and permission of instructor.

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

Advanced study of insurance management including underwriting, investment, and other problems related to effective business operation. Programing of personal, partnership and corporation estates. Prerequisites: Business Administration 120, 124, 125; and permission of instructor.

250. **Seminar in Marketing (3)**

Selected phases of marketing, such as pricing policies and practices, channels of distribution, sales promotion activities, distribution cost analysis. Written reports on special aspects of the semester's subject matter are required. Prerequisites: Business Administration 150 and permission of instructor.

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.

296. **Directed Field Experience (1-6)**

Students lacking practical experience in the occupational area will be required to obtain such experience in the field, subject to approval by the faculty adviser. Required in addition to the 30 units for the master of science degree, when experience is lacking or not acceptable. Not open to students who have already qualified.

298. **Special Study (1-6)**

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

299. **Thesis (3)**

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

## BUSINESS EDUCATION

### GENERAL INFORMATION

The Department of Business Education, in the Division of Business Administration, offers graduate work leading to the master of arts degree for teaching service with a concentration in business education. It is designed for students in teaching service and is expressly fitted to the needs and interests of each student with special consideration being given to his past college work, his California teaching credentials, and his work experience in teaching and/or industry. San Diego State College is particularly well equipped with the most modern office machines and devices, enabling the graduate student to work in excellent business education laboratory surroundings.

The general secondary credential is also available with a major or a minor in business education.

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include a concentration defined as follows: A minimum of 18 units in business administration selected from courses listed below as acceptable on master's degree programs in business education of which at least 10 units must be in 200-numbered courses. Education 290A is recommended. (The student must also satisfy the requirements for a California school service credential.) The student may choose to write a thesis or a project report, or may elect to take a comprehensive departmental examination composed of the following parts:

(a) A general section designed to test the student on core information in the business teaching field.

(b) Two special sections designed to test the student on the two business education subfields set forth on his California teaching credential.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete six units of Business Administration 270, Seminar in Business Education, as required in the teaching major in business education. Refer to Part Two of this bulletin on Advanced Credentials for further information on the general secondary credential.

### ADVANCEMENT TO CANDIDACY

All students are required to satisfy the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Arts Degree.

### FACULTY

Department Chairman: M. L. Crawford

Graduate Adviser: M. L. Crawford

General Secondary Credential Adviser: M. L. Crawford, Evangeline LeBarron

Professor: E. E. Gibson, Ed.D.

Associate Professors: M. L. Crawford, M.S.; Evangeline LeBarron, B.A., B.S.; Laura Lynn Straub, M.C.S.

Assistant Professors: E. E. Archer, Ed.D.; J. C. Barrons, M.E.; L. A. Pemberton, M.A.

## COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN BUSINESS EDUCATION

### UPPER DIVISION COURSES IN BUSINESS ADMINISTRATION

- |   |   |
|---|---|
| 180. Workshop in Business Education (2)                           | 186. Office Machines Methods (2)                        |
| 181. Administration and Supervision of Distributive Education (3) | 188. Records Management (1)                             |
| 183A-183B. Executive Secretarial Procedures (3-3)                 | 189. Objectives and Curricula in Business Education (3) |
| 184. Office Management (3)  | 196. Work Experience (2)                                |
| 185. Office Systems and Automation (3)                            | 199. Special Study (1-6)                                |

Any other upper division course listed in the Division of Business Administration may be selected with approval of the graduate adviser.

### GRADUATE COURSES IN BUSINESS ADMINISTRATION

270. Seminar in Business Education (2)  
An intensive study of some phase of Business Education such as administration and supervision, distributive education, and basic business education. May be repeated with new subject matter for additional credit. Maximum of six units may be applied for the master's degree program.
271. Seminar in Office Management (2)  
An intensive study of the problems of office management and their solution. The relation of records, reports, budgets, and manuals to managerial control. Prerequisites: Business Administration 1A-1B, 173.
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.
298. Special Study (1-6)  
Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.
299. Thesis (3)  
Guidance in the preparation of a project or thesis for the master's degree. Students have an option of a comprehensive examination or a thesis or project. Prerequisites: An officially appointed thesis committee and advancement to candidacy.

## CHEMISTRY

### GENERAL INFORMATION

The Department of Chemistry offers graduate work leading to the master of arts degree with a major of chemistry, the master of arts degree for teaching service with a concentration in chemistry, and the master of science degree in chemistry. The general secondary credential with teaching majors and minors in physical science and general science is 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 work is based on this sound undergraduate foundation. Specialized equipment is available for research projects and a new three million dollar chemistry building is in the planning stages with occupancy expected by September, 1959.

Within a 100-mile radius of San Diego are to be found chemical operations of great diversity, including steel mills, petroleum refineries, and all types of food processing plants. Within San Diego proper are medical, industrial, and governmental laboratories concerned with marine products, aircraft materials, atomic energy, and many other research fields. Arrangements may be made with these installations which, in addition to providing stimulation and illustration, will permit summer employment or the acquisition of industrial field experience.

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One 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.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include either a major or a concentration defined as follows:

**Major:** A minimum of 24 units in chemistry (excluding Chemistry 290 and 296) from courses listed below as acceptable on master's degree programs, at least 15 of which must be in 200-numbered courses (excluding Chemistry 298). Chemistry 220 and Chemistry 299 are required courses. The student must demonstrate a reading knowledge of scientific German and must pass a final oral examination on his thesis.

**Concentration:** A minimum of 18 units from courses listed below as acceptable on master's degree programs in chemistry, of which at least 10 units must be in 200-numbered courses. Chemistry 290 and Chemistry 299 are required courses. (The student must also satisfy the requirements for a California school service credential.)

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF SCIENCE PROGRAMS

In addition to meeting the requirements for regular graduate standing, the student must satisfy the general requirements for the master of science degree, as described in Part Two of this bulletin under Master of Science Degree. Subject to departmental approval, the student may elect Plan A, with the thesis, or Plan B,

with the comprehensive examination. The student must also meet the following departmental requirements:

- (a) Take the qualifying examination in chemistry no later than the first semester in residence.
- (b) Prepare a program of studies in consultation with his departmental advisory committee to incorporate the following:
  - (1) Twelve units of 200-numbered courses in chemistry, including Chemistry 220 and excluding Chemistry 290, 296, 298, and 299.
  - (2) Nine units of graduate level or approved upper division courses in chemistry excluding Chemistry 290, 296, and 299.
  - (3) Nine units of electives approved by the student's departmental committee.
- (c) Complete the requirement for Chemistry 296, Directed Field Experience, as described in Part Two of this bulletin in the section on the Master of Science Degree.

### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete four units selected from 200-numbered courses in Chemistry or Physics, as required in the teaching major in physical science and general science. Refer to Part Two of this bulletin on Advanced Credentials for further information on the general secondary credential.

### ADVANCEMENT TO CANDIDACY

**Master of Arts:** In addition to meeting the requirements for advancement to candidacy described in Part Two of this bulletin under the Master of Arts Degree-General Requirements, students must pass a qualifying examination in chemistry.

**Master of Arts (Teaching Service):** For information on general requirements for advancement to candidacy, refer to Part Two of this bulletin, the section on Master of Arts Degree-General Requirements.

**Master of Science:** For information on general requirements for advancement to candidacy, refer to Part Two of this bulletin, the section on Master of Science Degree-General Requirements. In addition to these general requirements, the student must pass a qualifying examination in chemistry administered by the Department of Chemistry.

### SCHOLARSHIPS AND ASSISTANTSHIPS

Graduate teaching assistantships are available in limited number. These assistantships offer an annual stipend of \$2,148 for half-time service in the Department of Chemistry. Refer to Part One of this bulletin, section on Graduate Scholarships and Awards, for information on scholarships.

### FACULTY

Department Chairman: R. W. Isensee

Graduate Advisers:

Master of Arts (Teaching): A. R. Nichols, Jr.

Master of Arts: R. W. Isensee

Master of Science: R. W. Isensee

General Secondary Credential Adviser: L. E. Smith

Professors: R. W. Isensee, Ph.D.; Lionel Joseph, Ph.D.; A. R. Nichols, Jr., Ph.D.; D. H. Robinson, Ph.D.; R. D. Rowe, Ph.D.; J. A. Spangler, Ph.D.; Harold Walba, Ph.D.

Associate Professor: Arne Wick, Ph.D.

Assistant Professors: N. J. Harrington, M.A.; L. H. Hellberg, Ph.D.; Reilly Jensen, Ph.D.; V. J. Landis, Ph.D.; J. G. Malik, Ph.D.; J. C. Sheppard, Ph.D.; C. J. Stewart, Ph.D.; E. P. Wadsworth, Jr., Ph.D.

COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS  
IN CHEMISTRY

UPPER DIVISION COURSES

- |  |  |
|--|--|
| 115. General Biochemistry (4)          | 144A-144B. Principles of Chemical Engineering (3-) |
| 118. Colloid Chemistry (2)             | 154. Organic Qualitative Analysis (3)              |
| 127. Advanced Inorganic Chemistry (3)  | 155. Instrumental Methods of Analysis (3)          |
| 131. Theoretical Organic Chemistry (3) | 170. Radiochemistry (3)                            |

GRADUATE COURSES

200. Seminar (2 or 3)  
An intensive study of some phase of advanced chemistry, such as chemical kinetics; molecular structure; photochemistry, electrochemistry. May be repeated with new subject matter for additional credit.
220. Chemical Thermodynamics (3)  
An introduction to the study of chemical thermodynamics. Prerequisites: Mathematics 52 and Chemistry 110B.
221. Quantum Chemistry (3)  
Selected topics in thermodynamics and quantum chemistry, including an introduction to the statistical approach to quantum mechanics. Prerequisite: Chemistry 220.
222. Chemical Kinetics (2)  
Theory of rate processes; applications of kinetics to the study of reaction mechanisms. Prerequisites: Mathematics 52 and Chemistry 110B.
223. Physical Chemistry of Electrolytic Solutions (2)  
Theory of ionic solutions; electrode potentials, determination of activity coefficients, partial molal quantities and their applications. Prerequisite: Chemistry 220.
230. Advanced Organic Chemistry (2)  
Applications and limitations of organic reactions from the viewpoint of synthesis. Prerequisite: Chemistry 101B.
231. Mechanisms in Organic Reactions (2)  
Reactivity and mechanism in organic reactions. Prerequisites: Chemistry 110B and 131.
240. Chemistry of the Less Familiar Elements (2)  
Modern inorganic theory applied to electronic configurations, periodic relationships and uses of selected less familiar elements. Prerequisite: Chemistry 127.
250. Advanced Analytical Chemistry (2)  
Selected topics and theories in advanced analytical chemistry. Prerequisites: Chemistry 105 and 110B.
260. Advanced Biochemistry (2)  
Discussion of selected topics emphasized in current research in carbohydrates, fats, and protein metabolism such as mechanisms of biological reactions, growth factors, and hormonal control. Prerequisites: Chemistry 110B and 115.
270. Nuclear Chemistry (2)  
Chemistry of the actinides. Nuclear reactions, induced radioactivity, separation processes. Prerequisite: Chemistry 170.
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.
296. Directed Field Experience (1-6)  
Meets the requirement of directed field experience for candidates for the master of science degree, but is not limited to candidates for the degree. Required in addition to the 30-unit requirement for the degree, when previous experience is lacking or not acceptable.

298. Special Study (1-6)

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

299. Thesis (3)

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

## ECONOMICS

### GENERAL INFORMATION

The Department of Economics offers graduate work leading to the master of arts degree with a major in economics. For graduate work in connection with the master of arts degree for teaching service with a concentration in social science, refer to the section of this bulletin under Social Science. Graduate work for the teaching minor of the general secondary credential is also offered. Research facilities provided by the Department of Economics include the Economics Research Center and the Institute of Labor Economics.

### ADMISSION TO REGULAR STANDING

All students must satisfy the general requirements for admission to regular graduate standing as described in this bulletin under Admission to the Graduate Division. In addition, students seeking the master of arts degree with a major in economics must have completed at least 18 units of upper division courses in economics including Economics 100A-100B, Intermediate Economic Theory, Economics 140, Statistical Methods, 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, and Economics 140, 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 regular graduate standing.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include a minimum of 24 units in economics from courses listed below as acceptable on master's degree programs of which at least 15 units must be in 200-numbered courses including Economics 299, Thesis. The remaining unit requirements may be selected from courses in economics listed below or, with the approval of the graduate adviser, 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.

### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Refer to the appropriate section of the General Catalog and Announcement of Courses.

### ADVANCEMENT TO CANDIDACY

For information on the general requirements for advancement to candidacy, refer to Part Two of this bulletin, under Master of Arts Degree—General Requirements.

### FACULTY

Department Chairman: G. K. Anderson  
Graduate Adviser: G. K. Anderson  
Professors: G. K. Anderson, Ph.D.; R. E. Cameron, Ph.D.; J. O. McClintic, Ph.D.; F. L. Ryan, Ph.D.  
Associate Professors: Marjorie S. Brookshire, Ph.D.; Adam Gifford, Ph.D.  
Assistant Professors: George Babilot, Ph.D.; R. E. Barckley, Ph.D.; D. C. Bridenstine, Ph.D.; L. E. Chadwick, B.S.; D. A. Flag, Ph.D.; E. J. Neuner, Jr., Ph.D.

## COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN ECONOMICS

### UPPER DIVISION COURSES

- |   |  |
|---|--|
| 102. Comparative Economic Systems (3)         | 171. Transportation Economics (3)                  |
| 107. Introduction to Econometrics (3)         | 172. Public Utilities (3)                          |
| 127. Agricultural Economics (3)               | 173. Economics of Energy and Water Resources (3)   |
| 131. Public Finance (3)                       | 174. Economic Concentration and Monopoly Power (3) |
| 133. Corporation Finance (3)                  | 185. Social Insurance (3)                          |
| 135. Money and Banking (3)                    | 190. International Economics—Principles (3)        |
| 138. Urban Land Economics (3)                 | 195. International Economics—Problems (3)          |
| 139. Real Estate Principles and Practices (3) | 198. Investigation and Report (3)                  |
| 142. Business Cycles (3)                      | 199. Special Study (1-6)                           |
| 150. Labor Problems (3)                       |  |
| 151. Labor Legislation (3)                    |  |
| 152. Collective Bargaining (3)                |  |

### GRADUATE COURSES

- 200A-200B. Seminar in the Development of Economic Thought (3-3) I, II  
A critical study of the development of economic thought. Prerequisite: Twelve units in economics.
- 203A-203B. Seminar in Advanced Economic Theory (3-3)  
Individual research, seminar reports, group discussion of problems in economic theory. Prerequisites: Economics 100A and Economics 100B.
231. Seminar in Public Finance (3)  
Advanced study of public finance problems and literature; research. Prerequisite: Economics 131.
235. Seminar in Money and Banking (3)  
Individual research, seminar reports and group discussion of selected economic problems related to the structure and functioning of the financial system. Prerequisite: Economics 135.
250. Seminar in Labor Economics (3)  
Individual study and group discussion of selected topics in labor economics. Prerequisites: Economics 150 and Economics 151.
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.
295. Seminar in International Economics (3)  
Individual and group research into selected topics; group discussion of procedures and results. Prerequisites: Economics 190 and 195.
298. Special Study (1-6)  
Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.
299. Thesis (3)  
Guidance in the preparation of a project or thesis for the master's degree. Prerequisites: An officially appointed thesis committee and advancement to candidacy.

## EDUCATION

### GENERAL INFORMATION

The Department of Education offers graduate work leading to the master of arts degree in education with concentrations in the following: audiovisual education, elementary curriculum and instruction, secondary curriculum and instruction, elementary administration, secondary administration, school supervision, pupil personnel services, and special education. Some of these concentrations are designed to permit concurrent completion of the requirements for the correspondingly named advanced credentials. (For information on these credentials, refer to Part Two of the bulletin, section on Advanced Credentials.)

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One 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 regular day school service California credential, other than an emergency or provisional credential, before he will be recommended by the department for regular graduate standing. Students who are eligible to receive the master of arts degree without teaching credentials, will be given special consideration. (For information on eligibility of students to take the master's degree, refer to Part Two of the bulletin, section on Master of Arts Degree.)

### ADVANCEMENT TO CANDIDACY

Students desiring master's degree concentrations in audiovisual education, elementary curriculum and instruction, secondary curriculum and instruction, may be advanced to candidacy upon completion of the general requirements as described in Part Two of this bulletin, section on Master of Arts Degree, and upon satisfactory completion of the departmental qualifying examination. Students desiring concentrations in administration (elementary or secondary), supervision, pupil personnel services, and special education must, in addition to the above, meet specific requirements for admission to the appropriate advanced credential program. (For further information, refer to Part Two of this bulletin, section on Advanced Credentials.)

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS DEGREE

In addition to meeting the requirements for regular graduate standing and the credential requirements as applicable, the student must satisfy the general requirements for the master of arts degree, described in Part Two of the bulletin, section on Master of Arts Degree. In addition, the student must complete a minimum of 18 units in one of the concentrations in education. Education 290A-B 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.

#### The Comprehensive Examination

This examination is required of all candidates for the master's degree in education. For students who were not required to pass the qualifying examination mentioned above under advancement to candidacy, the examination will be in two parts. For students who have passed the qualifying examination, the comprehensive will cover the field of the concentration.

A student is eligible to take the comprehensive only if he has been advanced to candidacy and has completed over half of his official program. The comprehensive examination must be passed before a student is eligible to enroll in Education 295, Seminar, or in Education 299, Thesis.

### Selection of Plan A or Plan B

After a candidate has been assigned to an adviser, he must make an appointment with that adviser to plan his program of studies for the master of arts degree. All applicants will be programed at that time 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 sponsor for it. Requests for transfer to Plan A must be countersigned by such faculty sponsor and be submitted to the Office of the Division 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 provides an opportunity to have two experiences of a writing and research nature, thus providing a more extensive background rather than the detailed and intensive concentration resulting from the thesis. 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 approximately equivalent to the thesis with respect to the difficulty and quantity of work required.

### Course Requirements

(For course requirements in administration, supervision, and pupil personnel services, see the section of this bulletin on advanced credentials.)

#### Elementary Curriculum and Instruction

The master of arts degree with a major 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. Twelve to 15 units of electives afford the student an opportunity to select a program to meet his needs from courses in the various elementary subject fields, child study, special study, and related academic departments. This program of work furnishes an excellent curricular background for those who may prepare later for credentials in administration and supervision. Course requirements are as follows:

1. Prerequisites: (a) a valid four-year elementary credential or equivalent course work; (b) 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 290A, Procedures of Investigation and Report (2 units); Education 290B, Bibliography (1 unit).
3. Core program (12 units) to include: Education 206, Philosophy of Education, or 207, Educational Sociology; Education 220, Advanced Educational Psychology; Education 240, Elementary Curriculum; and Education 241 or 242 or 243 or 244, Problems in Teaching.
4. Additional required courses (3-6 units): Education 295A-295B, Seminar, or Education 299, Thesis.
5. Electives (12 units) selected with approval of the adviser.

#### Secondary Curriculum and Instruction

The master of arts degree in secondary curriculum and instruction is designed to assist the applicant in improving his facility as a classroom teacher. The program lends itself readily to a combined general secondary credential and the master of arts degree, with up to 15 units common to the two programs. Twelve units in basic education courses are prerequisite to the program. Course requirements are as follows:

1. Education 290A, Procedures of Investigation and Report (2 units); Education 290B, Bibliography (1 unit).
2. Core program (15 units) to include: Education 206, Philosophy of Education; Education 220, Advanced Educational Psychology; Education 230, Guidance Problems in the Secondary Schools; Education 250, Curriculum Problems in the Secondary Schools; and Education 254, Advanced Problems in Secondary School Instruction.
3. A minor concentration (6-9 units) selected from the following areas: audiovisual education, elementary education, measurement and evaluation, guidance, educational administration and leadership, reading, social foundations of education, special education, or a subject matter field.

4. Electives (0-3 units).

5. Additional required courses (3-6 units): Education 295A-295B, Seminar, or Education 299, Thesis.

#### Audio-visual Education

1. Twelve units in basic education courses are prerequisite to the program.

2. Education 290A, Procedures of Investigation and Report (2 units); Education 290B, Bibliography (1 unit).

3. 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) Education 264, Elementary School Supervision, or Education 265, Secondary School Supervision; (c) six units from the following: Education 141, Creating Audio-visual Materials for Classroom Use; Education 274A, Utilizing Audio-visual Materials in the Classroom; and Education 275, Administering the Use of Audio-visual Materials; (d) 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; Speech Arts 182, Radio Workshop; Education 298, Special Study; and (e) Education 316B, Directed Internship.

4. Electives (6 units).

5. Additional required courses (3-6 units): Education 295A-295B, Seminar, or Education 299, Thesis.

#### TEACHING EXPERIENCE

Students majoring in pupil personnel services, or in any area of administration, must verify a minimum of two years of successful teaching experience. Students majoring in supervision must verify a minimum of five years of successful public school service.

#### ADVANCED CREDENTIAL REQUIREMENTS

Students majoring in pupil personnel services, in special education, in supervision, or in either administrative area, must complete the requirements for the appropriate credential either prior to or concurrently with completion of other requirements for the master's degree. (Refer to Part Two of the bulletin, section on Advanced Credentials for additional information.) In these majors, it is likely that total requirements will exceed the minimum of 30 units, since programs must include requirements for both the advanced credential and the master's degree.

#### SCHOLARSHIPS

The following scholarships are available to graduate students in education.

**AMERICAN ASSOCIATION OF UNIVERSITY WOMEN.** Awarded each June to a graduating woman senior who will begin work in an accredited college or university toward a higher degree or credential. \$100.

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

**SAN DIEGO COUNTY TEACHERS ASSOCIATION.** Awarded to four students in the field of education. \$100 each per year.

**TEACHER EDUCATION SCHOLARSHIP.** Awarded to a fifth-year student in training for the General Secondary Credential. \$400 per year.

#### FACULTY

Dean of the Division of Education: M. H. Schrupp  
Department Chairman: G. A. Koester  
Coordinator of Elementary Education: J. J. Jarolimek  
Coordinator of Secondary Education: E. G. Fulkerson  
Chairman of Administrative Studies Committee: R. A. Houseman  
Chairman of Guidance Studies Committee: D. D. Malcolm  
Chairman of Special Education Studies Committee: F. A. Ballantine  
Coordinator of Master's Degree: F. A. Ballantine

Graduate Advisers:

Elementary Curriculum and Instruction: P. C. Gega

Secondary Curriculum and Instruction: J. A. Apple

Elementary Administration and Supervision: Charles Lienert

Secondary Administration and Supervision: M. H. Platz

Elementary Pupil Personnel Services: E. L. Anderson

Secondary Pupil Personnel Services: R. L. Trimmer

Special Education: F. A. Ballantine

Audio-visual Education: J. S. Kinder

Professors: M. D. Alcorn, Ed.D.; J. A. Apple, Ed.D.; F. A. Ballantine, Ph.D.; Marguerite A. Brydegaard, Ed.D.; T. R. Carlson, Ph.D.; Kurt Friedrich, Ed.D.; C. M. Gjerde, Ph.D.; D. W. Grisier, Ed.D.; R. A. Houseman, Ed.D.; J. J. Hunter, Jr., Ph.D.; J. S. Kinder, Ph.D.; G. A. Koester, Ph.D.; J. M. Linley, Ph.D.; Richard Madden, Ph.D.; M. H. Schrupp, Ph.D.; J. R. Schunert, Ph.D.; M. F. Stough, Ph.D.; A. E. White, Ed.D.

Associate Professors: E. L. Anderson, Ed.D.; P. S. Anderson, Ph.D.; Guinivere E. Bacon, M.A.; D. L. Baker, Ed.D.; Lois B. Campbell, M.A.; C. E. Crum, Ed.D.; J. S. Fisher, Ph.D.; E. G. Fulkerson, Ed.D.; G. F. Gates, Ed.D.; J. J. Jarolimek, Ph.D.; Bjorn Karlsen, Ph.D.; Elizabeth J. Klemer, M.A.; D. D. Malcolm, Ph.D.; R. R. Nardelli, Ph.D.; Helen L. Prouty, Ph.D.; R. L. Trimmer, Ph.D.

Assistant Professors: Aileen J. Birch, M.A.; R. M. Briggs, Ph.D.; Paul Bruce, Ph.D.; Charlotte C. Carey, Ph.D.; Charles Falk, S.T.D.; Clarence Fishburn, Ed.D.; C. D. Foster, Ph.D.; Owen Geer, Ed.D.; P. C. Gega, Ed.D.; P. J. Groff, Ed.D.; Earl Grotke, Ph.D.; W. O. Hill, Ed.D.; Edna Koehn, Ph.D.; Charles Lienert, Ed.D.; Bette McVay, M.A.; Martha Miller, M.A.; Gerald Person, Ph.D.; M. R. Pettys, Ed.D.; M. H. Platz, Ed.D.; J. A. Rodney, M.A.; J. L. Schmidt, Ph.D.; H. R. Smith, Ph.D.; Marguerite R. Strand, Ph.D.; M. Agnes Walsh, M.A.; W. H. Wetherill, M.A.; Georgia Wheeler, M.A.

#### COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN EDUCATION

##### UPPER DIVISION COURSES IN EDUCATION

- |   |  |
|---|--|
| 111. Educational Psychology (2)                             | 137. Reading Difficulties (3)                                  |
| 114. Interpretation of Early Childhood Behavior (3)         | 138. Curriculum in Elementary Education (3)                    |
| 115. Guidance in Elementary Education (3)                   | 140. Audio-Visual Instruction (3)                              |
| 118. Supervision of Child Welfare and Attendance (3)        | 141. Creating Audio-Visual Materials for Classroom Use (3)     |
| 122. Reading in Secondary Education (3)                     | 143-S. Workshop in Educational Television (6)                  |
| 125. Organization and Administration of Music Education (2) | 150. Psychological Testing (3)                                 |
| 126. Workshop in Secondary Education (3 or 6)               | 170. Exceptional Children (3)                                  |
| 130. First Elementary Education Practicum (13)              | 171. Curriculum and Methods for Mentally Retarded Children (3) |
| 131. Second Elementary Education Practicum (7)              | 172. Workshop for Teaching the Mentally Retarded (3-6)         |
| 132. Kindergarten-Primary Practicum (4)                     | 173. Vision Testing and Hygiene (2)                            |
| 133. Children's Literature in Education (3)                 | 174. Principles and Methods of Speech Correction (3)           |
| 134. Laboratory in Elementary Education (3)                 | 176. Stuttering and Neurological Disorders (3)                 |
| 135. Workshop in Elementary Education (3 or 6)              | 177. Aural Rehabilitation (3)                                  |
| 136. Music Literature for Elementary Teaching (3)           | 178. The Teaching of Lip Reading (2)                           |
|   | 182. Directed Internship (1-6)                                 |
|   | 190. Conference on the Teaching of Mathematics (1)             |
|   | 191. Guidance Conference (1)                                   |
|   | 192. Audio-visual Conference (1)                               |
|   | 199. Special Study (1-6)                                       |

##### GRADUATE COURSES IN EDUCATION

For requirements for admission to graduate courses, refer to the section of this catalog on Admission to the Graduate Division. In addition to these general requirements, 12 units of professional education are prerequisite for enrollment in all graduate courses.

*Sociological Foundations*

201. **The Junior College (2)**  
Overview of philosophy, history, aims, scope, function, outcomes, principles and problems of the junior college. Relation of the junior college to elementary and secondary schools and to four-year colleges. Field work, including observation and audio-visual experiences, required.
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)**  
Advanced study of the history of education with emphasis on educational practices as related to present-day problems. Prerequisite: Education 101 or equivalent.
206. **Philosophy of Education (3)**  
Advanced study of philosophical backgrounds of educational thought; a study of comparative philosophies, and an analysis of selected current trends and problems. Prerequisite: Education 101 or equivalent.
207. **Education Sociology (3)**  
A study of the social, economic, political and moral setting in which present-day American education functions. Prerequisites: Education 101, or equivalent, and teaching experience.
208. **Workshop in Community Influences on Learning and Curriculum Planning (3 or 6)**  
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. Prerequisite: Teaching experience.
- Educational Psychology*
220. **Advanced Educational Psychology (3)**  
Advanced study of the research and its application to learning and human growth. Prerequisites: Education 111, or equivalent, and teaching experience.
221. **Seminar in Educational Measurement (3)**  
Problems in educational testing. Emphasis upon construction, administration, and validation of teacher-made tests. Prerequisite, one of the following: Education 150, 151, 152, or equivalent.
222. **The Gifted Child (3)**  
The abilities and characteristics of the intellectually gifted or talented; related problems of curriculum, teaching, administration and guidance. Prerequisites: Education 112 and 113, or Education 110.
223. **Educational Psychology (Junior College) (2)**  
Field work required.  
Prerequisite: Education 201 or concurrent registration in 201.  
The nature of the junior college student; the learning process including contributions of audio-visual materials. The functions of student personnel services in the junior college.
230. **Guidance Problems in Secondary Education (3)**  
The theory and practice of guidance emphasizing advanced mental hygiene concepts needed by teachers and counselors. Prerequisite: Education 110, or equivalent.
231. **Techniques of Pupil Appraisal (3)**  
Techniques of collecting, assembling, and interpreting data about individual pupils for guidance purposes. Fieldwork required. Prerequisites: Psychology 104A and either Education 152 or 151, or equivalents.
232. **Problems in Vocational Guidance (3)**  
To prepare counselors for vocational guidance in secondary schools. Emphasizes group and individual procedures for assisting pupils to understand and integrate vocational and self-information. Prerequisites: Education 230 and 231, or equivalents.
233. **Guidance Counseling Techniques (3)**  
Designed for school counselors. To stress the understandings and procedures necessary for effective interviewing. Prerequisite: Education 115, or Education 230, or Psychology 151. Not open to students with credit for Psychology 233.

234. **Administration of Pupil Personnel Services (3)**  
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. Prerequisite: Education 230, or equivalent.
237. **Research in Guidance Problems (1-3)**  
Individual study by graduate students who have demonstrated exceptional ability and a need for such work. Admission by permission of the Coordinator of Secondary Education and instructor.
238. **Field Work in School Guidance (3)**  
Application of the principles and procedures in testing, counseling, and related personnel work in the public school. Weekly seminar sessions with college and cooperating staff. Prerequisites: 12 units in guidance and related areas and permission of instructor.
239. **Workshop in Pupil Personnel Services (3)**  
Application of principles and procedures to specific situations for improvement of pupil personnel services. Individual problems emphasized. Prerequisites: Teaching experience and permission of director of workshop.

*Elementary Education*

240. **Curriculum Construction and Evaluation in Elementary Education (3)**  
Advanced study of the research in curriculum development, construction, and evaluation. Prerequisites: 12 units of work in elementary education and permission of instructor.
241. **Problems in the Teaching of Arithmetic (3)**  
A study of research and practice in the methods of teaching and in the curriculum of elementary and junior high school arithmetic. Prerequisite: Education 130A, or equivalent.
242. **Problems in the Teaching of Reading (3)**  
Advanced study of trends in reading instructions. 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. Prerequisites: Education 130E and 137, or equivalents.
243. **Seminar in Social Studies in Elementary Education (3)**  
Advanced study of problems in teaching social studies in the elementary school, with emphasis on the study of the scientific research in the field. Prerequisite: Permission of instructor.
244. **Seminar in Language Arts in Elementary Education (3)**  
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. Prerequisite: Permission of instructor.
245. **Seminar in Elementary Education (3)**  
A study of the methodology of research with particular reference to the basic research in the psychology and teaching of the elementary school subjects. Prerequisites: 12 units in elementary education and permission of the instructor.
246. **Advanced Diagnosis in Reading (3)**  
Principles and techniques of individual and group diagnosis of reading difficulties. Experience in administration and interpretation of individual and group instruments in diagnosis. Prerequisites: Psychology 204 and Education 137, or permission of instructor.
247. **Advanced Diagnosis and Treatment of Learning Difficulties (3)**  
Principles and techniques of diagnosis and treatment of difficulties in learning the school subjects. Supervised experience in working with individual pupils and their parents. Prerequisites: A teaching credential and Education 151 or 152.

*Secondary Education*

250. **Curricular Problems in Secondary Education (3)**  
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. Prerequisites: 12 units in secondary education and consent of the instructor.

251. **Instructional Methods and Materials (Junior College) (2)**

Prerequisites: Education 223 and concurrent registration in Education 316A. The teaching process at the junior college level, including lesson planning, utilization of audio-visual and other instructional materials and procedures of evaluation.

252. **General Education in the Secondary School (3)**

A course designed for teachers in service. A study of the function and implementation of general education in the secondary school. Prerequisites: 12 units in secondary education and permission of the instructor.

254. **Advanced Problems in Secondary School Instruction (3)**

An analysis of the scientific research and philosophical principles in secondary school instruction. Prerequisites: Teaching experience and permission of instructor.

256. **Recent Trends in Secondary Curriculum (3)**

Current practices and trends in secondary schools. Extensive individual work on related problems of interest to members of the class. Prerequisites: 12 units in secondary education and permission of the instructor.

257. **Workshop in Intercultural Education (4)**

A cooperative 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. Enrollment only by application to the Chairman of the Division of Education.

258. **Research in Curricular Problems (1-3)**

Individual study by graduate students who have demonstrated exceptional ability and a need for such work. Admission by permission of the Co-ordinator of Secondary Education and instructor.

*School Administration and Supervision*

260. **Federal, State, County and City School Organization and Administration (3)**

A study of federal, state, county and city school organization and administration including the interrelationships of the four levels. Prerequisite: Possession of a valid teaching credential.

262. **The Organization and Administration of Elementary Schools (3)**

A study of the problems of personnel, local finance, curriculum, school plant and community relations of elementary schools. Field project required. Prerequisites: Valid general elementary credential, teaching experience, Education 115, 240, 260, and 270 and admission to program of Administrative Studies.

263. **The Organization and Administration of Secondary Schools (3)**

A study of the problems of personnel, local finance, curriculum, school plant, transportation and community relations of secondary schools. Field project required. Prerequisites: Possession of a valid general secondary credential, teaching experience, Education 230, 250, 260, and 270 and admission to program of Administrative Studies.

264. **Elementary School Supervision (3)**

Principles and practices of supervision and methods of evaluating instruction and the curriculum in elementary education. Field project required. Prerequisites: General elementary credential, teaching experience, Education 115, 240, 260 and 270 and admission to program of Administrative Studies.

265. **Secondary School Supervision (3)**

Principles and practices of supervision, curriculum and teaching methods in secondary education. Field project required. Prerequisites: General secondary credential, teaching experience, Education 230, 250, 260 and 270 and admission to program of Administrative Studies.

266. **Field Work in Elementary School Administration and Supervision (3)**

Study of the administration and supervision of an elementary school with the cooperation of a local school administrator and under the supervision of a college staff member. Field projects required. Prerequisites: admission to the program of Administrative Studies, completion concurrently of all other requirements for the elementary administration or supervision credential, permission of local school administrator and instructor.

267. **Field Work in Secondary School Administration and Supervision (3)**

Study of the administration and supervision of a secondary school with the cooperation of a local school administrator and under the supervision of a college

staff member. Field projects required. Prerequisites: admission to the program of Administrative Studies, completion concurrently of all other requirements for the secondary administration or supervision credential, and permission of local school administrator and instructor.

268. **Seminar in School Administration (3)**

An intensive study of research on selected problems in the field of school administration. Provision will be made for individual work on special topics of interest to students. Prerequisite: permission of instructor.

270. **School Finance, Business Administration, and Law (3)**

A study of public school finance at federal, state and local levels; an analysis of the business administration of schools and a study of school law as it applies to finance, administration and other aspects of school administration. Prerequisite: possession of a valid teaching credential or permission of instructor.

271. **Supervision of Student Teaching (2)**

Study of selection, orientation, induction, counseling and evaluation of credential candidates and student teachers; and helping student teachers plan lessons, conduct classroom learning, analyze pupils' difficulties and achievement. Open to experienced teachers interested in the teacher education program.

274A. **Utilizing Audio-visual Materials in the Classroom (3)**

A critical analysis of research evaluating the use of visual, auditory, and other sensory materials in education. Prerequisite: Education 140 or equivalent.

275. **Administering the Use of Audio-visual Materials (3)**

Organizing, supervising, and coordinating audio-visual centers as an integral part of educational systems. Prerequisite: Education 140 or by permission of the instructor.

278. **Educational Leadership (3)**

An analysis of the factors and practice in 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. Prerequisite: valid teaching credential or permission of instructor.

*Procedures of Investigation*

290A. **Procedures of Investigation and Report (2)**

Methods of investigation, data analysis, and reporting. Procedures for selecting topics and writing papers, projects, and thesis. Exercises in locating, selecting, analyzing, and summarizing professional literature. For majors in education, concurrent registration in 290B is required.

290B. **Bibliography (1)**

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

295A-295B. **Seminar (3-3)**

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. Prerequisite: satisfactory score on the Graduate Comprehensive Examination in Education.

298. **Special Study (1-6)**

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

299. **Thesis (3)**

Guidance in the preparation of a project or thesis for the master's degree. Prerequisites: an officially appointed thesis committee and advancement to candidacy.

*Internship*

316B. **Directed Internship (2-6)**

Extensive daily participation or teaching in public schools in preparation for a second credential when Directed Teaching has been taken for a prerequisite credential. Application should be made during the preceding semester. Preregistration required. May be repeated for additional credit with new content.

## ENGINEERING

### GENERAL INFORMATION

The Division of Engineering offers graduate work leading to the master of science degree; this program is 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.

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 REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing as described in Part One of this bulletin, "Admission to the Graduate Division." In addition, the student must have a bachelor's degree in engineering or a closely related field from an institution acceptable to the Division 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.

### SPECIFIC DIVISIONAL REQUIREMENTS

In addition to meeting the requirements for regular graduate standing as stated above, the student must satisfy the general requirements for the master of science degree as described in Part Two of this bulletin on Master of Science Degree. With the approval of the Division the student may elect either Plan A, requiring a thesis, or Plan B, requiring a comprehensive written examination. In either case, a comprehensive oral examination will be required.

The student shall arrange his course pattern, in conference with his graduate adviser, according to the following outline:

Twelve units of 200-numbered courses in engineering, excluding Engineering 297, 298, and 299.

Twelve units of approved 100- and 200-numbered courses in the Divisions of Engineering and Physical Sciences.

### ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Science Degree.

### FACULTY

Division Chairman: Martin P. Capp

Professors-in-Charge: W. H. Shutts, Aeronautical Engineering; S. H. Stone, Civil Engineering; C. R. Lodge, Electrical Engineering; C. Morgan, Mechanical Engineering; C. R. Walling, Coordinator of Work-Study Programs.

Graduate Adviser: Charles Morgan, Mechanical Engineering.

Professors: M. P. Capp, M.S.; C. Morgan, M.S.; W. H. Shutts, Ph.D.; C. R. Walling, M.S.

Associate Professors: W. S. Bradfield, Ph.D.; C. R. Lodge, Ph.D.; H. L. Stone, M.S.; S. H. Stone, M.S.; C. H. Yang, Ph.D.

Assistant Professors: E. G. Bauer, M.S.; L. J. Hull, B.S.; P. E. Johnson, M.S.; R. L. Mann, M.S.; R. L. Mastin, Aeronautical Engineering; F. T. Quiett, M.Sc.; M. V. R. Rao, Ph.D.; A. F. Schmitt, Ph.D.; O. B. Sholders, M.S.

Instructors: H. L. Bilterman, A.B.; J. R. Lyon, B.S.

## MECHANICAL ENGINEERING

For the Master of Science degree in Mechanical Engineering, in addition to fulfilling the requirements of admission and those of the Division as stated above, the student must have obtained his bachelor's degree in mechanical engineering or a closely associated field of engineering or physical science. If the Mechanical Engineering Graduate Adviser deems the student's background insufficient in the field, the student will be required to complete additional undergraduate courses in mechanical engineering while in an unclassified graduate standing. Unit credit for such courses will be in addition to the 30 units required for the master's degree.

The student must select one area of concentration from those groups identified below and, in consultation with the Mechanical Engineering Adviser, prepare a program of studies according to the following criteria:

(a) Twelve units of 200-numbered courses in mechanical engineering, including 9 units in the area of concentration (see Groups A and B below), excluding Engineering 297, 298, and 299.

(b) Twelve units of 100- and 200-numbered courses in the Divisions of Engineering and Physical Sciences, including the thesis if elected.

(c) Six units of electives.

### AREAS OF CONCENTRATION IN MECHANICAL ENGINEERING

Group A: Thermodynamics and Heat Transfer

M.E. 210, Thermodynamics (3)

M.E. 211, Heat Transfer (3)

M.E. 212, Gas Dynamics (3)

M.E. 213, Aircraft and Missile Propulsion (3)

Group B: Mechanics

M.E. 220, Mechanical Vibrations (3)

M.E. 221, Stress Analysis (3)

M.E. 222, Dynamics of Machinery (3)

M.E. 223, Theory of Elasticity and Plasticity (3)

### COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAM IN MECHANICAL ENGINEERING

Any of the following engineering courses are acceptable for graduate credit for a Master of Science Degree in Mechanical Engineering:

#### UPPER DIVISION COURSES

120A. Structural Analysis I (3)

120B. Structural Analysis II (3)

124. Advanced Theory of Structures  
(3)

130. Network Analysis (3)

131. Electromechanical Control  
Devices (3)

134. Engineering Electronics (3)

135. Advanced Electrical  
Machinery (3)

142. Fuels and Combustion (3)

143. Gas Dynamics (3)

147. Introduction to Vibration  
Analysis (3)

150A. Subsonic Aerodynamics (3)

150B. Supersonic Aerodynamics (3)

151A. Aircraft Structures I (3)

151B. Aircraft Structures II (3)

152. Aircraft Propulsion Systems (3)

186. Advanced Resistance of  
Materials (3)

187. Methods of Analysis (3)

#### GRADUATE COURSES

##### Mechanical Engineering

200. Seminar in Mechanical Engineering (2 or 3)

Prerequisite: Consent of the graduate adviser and instructor. An intensive study in one of the following fields of engineering:

A. Thermodynamics and Fluid Flow

B. Mechanics

C. Engineering Materials

D. Engineering Systems

E. Operations Research in Engineering

F. Nuclear Engineering

210. **Thermodynamics (3)**

Prerequisites: Engineering 111B and credit or concurrent registration in Mathematics 118B.

A rigorous study of the laws of thermodynamics. Introduction to and application of kinetic theory and chemical thermodynamics. Thermodynamic relations for pure substances and development of pressure-volume-temperature relations. Binary mixtures. Criteria of equilibrium. Chemical equilibrium and chemical potential.

211. **Heat Transfer (3)**

Prerequisites: Engineering 140 and Mathematics 118B.

Two- and three-dimensional conduction; steady and unsteady state, heat transfer at high velocities, introduction to mass transfer.

212. **Gas Dynamics (3)**

Prerequisites: Engineering 143 and Mathematics 118B.

Further considerations of the flow of compressible fluids in conduits. Shock fronts, unsteady flow and real gases.

213. **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.

220. **Vibration Analysis (3)**

Prerequisites: Engineering 147 and credit or concurrent registration in Mathematics 118B.

Analysis of linear and nonlinear systems; of lumped and distributed systems; of multidegree of freedom systems. Transients. Self-excited vibrations.

221. **Stress Analysis (3)**

Prerequisites: Engineering 186 and Mathematics 118B.

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 gauges, and analogs in determining static, dynamic and residual stress distributions.

222. **Dynamics of Machinery (3)**

Prerequisites: Engineering 146 and credit or concurrent registration in Mathematics 118B.

Mathematical analysis of motion, stresses and deflections as applied to the design of machines. Dynamics of constrained systems; stability and system control. Application to systems involving mechanical, electrical and fluid links.

223. **Theory of Elasticity and Plasticity (3)**

Prerequisites: Engineering 186 and Mathematics 118B.

Introduction to theory of elasticity. Plane solutions. Stress and strain at a point. Energy methods and elastic stability. Mechanics of the plastic state. Yield criteria and stress-strain relation in the plastic state. Solutions for plastic deformation and residual stresses in bars, beams and tubes.

**Engineering**

297. **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.

298. **Special Study (1-3)**

Individual study. Three units maximum credit.

Prerequisite: Consent of staff; to be arranged with division chairman and instructor.

299. **Thesis or Project (3)**

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

Guidance in the preparation of a project or thesis for the master's degree.

**ENGLISH**

**GENERAL INFORMATION**

The Department of English offers graduate work leading to the master of arts degree with a major in English, and the master of arts degree for teaching service with a concentration in English. The general secondary credential with teaching majors and minors in English is also offered.

**ADMISSION TO REGULAR GRADUATE STANDING**

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division. Graduates from San Diego State College 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 College before admission to regular graduate standing can be recommended. If, in the opinion of the 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 program. The English Department recommends that students study extensively some foreign language.

**SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS**

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include either a major or a concentration defined as follows:

**Major:** A minimum of 24 units in English from courses listed below as acceptable on master's degree programs, of which at least 15 units must be in 200-numbered courses. English 290, English 299, English 192, and English 193 (or a reading knowledge of Latin) are required courses. The student must demonstrate a reading knowledge of French or German.

**Concentration:** A minimum of 18 units in English from courses listed below as acceptable on master's degree programs in English, of which at least ten units must be in 200-numbered courses. English 290 and English 299 are required courses. (The student must also satisfy the requirements for a California school service credential.)

**SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL**

In the graduate program for the general secondary credential, the student must include two 200-numbered courses, with other courses to make a minimum of six units of approved upper division and graduate work. In exceptional cases, two units of English 298, or three units of English 191 or 192, may be substituted for two units of English 200 with the consent of the departmental representative.

**ADVANCEMENT TO CANDIDACY**

**Master of Arts:** In addition to meeting the requirements for advancement to candidacy described in Part Two of this bulletin under the Master of Arts Degree-General Requirements, students must pass a qualifying examination in English and American Literature.

**Master of Arts (Teaching Service):** For information on general requirements for advancement to candidacy, refer to Part Two of this bulletin, the section on Master of Arts Degree-General Requirements.

**SCHOLARSHIPS AND ASSISTANTSHIPS**

The Dorothy Cranston Stott scholarship of \$100 is awarded each June to an English major who is graduating from San Diego State College and who is continuing work towards a higher degree or credential. Each year there are one or

two assistantships available to graduate students. Students appointed to these positions teach sections of Freshman English.

### FACULTY

Department Chairman: Harriet Haskell

Graduate Adviser: J. N. Tidwell

General Secondary Credential Advisers: C. B. Kennedy; J. N. Tidwell

Professors: J. R. Adams, Ph.D.; E. A. Block, Ph.D.; Gail Burnett, Ph.D.; Harriet Haskell, Ph.D.; F. L. Johnson, Ph.D.; J. S. Keeney, Ph.D.; C. B. Kennedy, Ph.D.; E. L. Marchand, Ph.D.; G. L. Phillips, Ph.D.; J. R. Theobald, Ph.D.; C. F. Shouse, Ph.D.; J. N. Tidwell, Ph.D.; Mabel Trail, Ph.D.

Associate Professors: G. W. Sanderlin, Ph.D.; Lowell Tozer, Ph.D.

Assistant Professors: J. R. Baker, Ph.D.; L. H. Frey, M.A.; Lee Gerlach, Ph.D.; J. P. Monteverde, Ph.D.; W. A. Perkins, Ph.D.; G. A. Sandstrom, Ph.D.; Dorothy C. Wanlass, Ph.D.; Kingsley Widmer, Ph.D.

### COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN ENGLISH

#### UPPER DIVISION COURSES

- |  |   |
|--|---|
| 101A-101B. Modern Continental Fiction (3-3)                        | 131. American Literature (1820-1860) (3)          |
| 106. Creative Writing (3)  | 132. The Frontier and American Literature (3)     |
| 110. Individual Reading (1)  | 133. American Literature (1860-1910) (3)          |
| 113. American English (3)  | 134. American Literature: 1910 to the Present (3) |
| 115. The Bible as Literature (3)                                   | 143A-143B. The English Novel (3-3)                |
| 116A-116B. The Age of Elizabeth (3-3)                              | 149. The Study of Poetry (3)                      |
| 117A-117B. Shakespeare (3-3)                                       | 151. Chaucer (3)                                  |
| 118B-118B. Eighteenth Century English Literature (3-3)             | 152A-152B. World Drama (3-3)                      |
| 119A. English Romantic Poetry (3)                                  | 162. The Writing of Fiction (3)                   |
| 119B. Victorian Poetry (3)   | 189. Studies in American Folklore (3)             |
| 120A. The Seventeenth Century: Milton (3)                          | 191. Advanced Composition (3)                     |
| 120B. The Seventeenth Century: Metaphysical and Cavalier Poets (3) | 192. The English Language (3)                     |
| 126A. Romantic and Victorian Prose (3)                             | 193. Old English (3)                              |
| 126B. Late Nineteenth Century British Prose (3)                    | 195. Literary Criticism (3)                       |
| 129. Contemporary British Literature (3)                           | 198. Comprehensive Reading and Survey (3)         |
|  | 199. Special Study (1-6)                          |

#### GRADUATE COURSES

260. **Problems of Literary Creation (2-6) II**  
Criticism and coaching in the larger forms. Prerequisite: Consent of instructor and departmental adviser.
290. **Bibliography (2)**  
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: A Major Author (3)**  
Prerequisite: Twelve units of upper division work in English.  
The critical study of a major author, such as Shakespeare, Dickens, Mark Twain. May be repeated with new content for additional credit.
292. **Seminar: A Cultural Period (3)**  
Prerequisite: Twelve units of upper division work in English.  
The study, through its literature, of a cultural period such as the Renaissance, the Enlightenment, the Romantic Revolution, or the like. May be repeated with new content for additional credit.

#### 293. Seminar: A Literary Problem (3)

Prerequisite: Twelve units of upper division work in English.  
The study of a literary problem, such as Regionalism in America, or European influences on American Literature, or the like. May be repeated with new content for additional credit.

#### 294. Seminar: A Literary Type (3)

Prerequisite: Twelve units of upper division work in English.  
The study of a literary type, such as the Personal Essay, Epic, Tragedy, and the like. May be repeated with new content for additional credit.

#### 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.  
Guidance in the preparation of a project or thesis for the master's degree.

## FOREIGN LANGUAGES

### GENERAL INFORMATION

The Department of Foreign Languages offers graduate work leading to the master of arts degree for teaching service with a concentration in foreign languages and specializations in French, Spanish, and Romance Languages (French and Spanish), and to the general secondary credential with teaching majors in French, Spanish, and Romance Languages, and teaching minors in French and Spanish. The staff in charge of the graduate program in foreign languages is composed of professors for whom either French or Spanish is a native tongue or whose extensive travel and study in France, Spain, Mexico, and South America enables them to represent authoritatively these various languages and cultures. The proximity of Mexico and the fact that San Diego has a Spanish-speaking population of some twenty thousand Mexicans and their descendants make possible many contacts with the spoken Spanish language and with a Spanish civilization. Library facilities offering a large collection of books, newspapers and periodicals in French and Spanish are available at the college. A foreign language laboratory with the latest equipment serves both graduate and undergraduate students.

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division. An undergraduate major in foreign languages with French or Spanish must be completed, at least three units of which must be allocated to a comprehensive reading and survey course. A proficiency examination in the field of specialization will be given by the Department of Foreign Languages to applicants who have already obtained a general secondary credential.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the credential requirements as applicable, the student must satisfy the general requirements for the master of arts degree, described in Part Two of the bulletin, section on Master of Arts Degree. In addition, he must complete a concentration of 18 units in foreign language from courses listed below as acceptable on master's degree programs, of which at least 10 must be in 200-numbered courses. The following specific courses must be taken to fulfill the minimum requirements in the three areas of concentration:

- French: French 214, 220, 298; Romance Languages 290; and a minimum of six upper division or graduate units in French.
- Spanish: Spanish 201, 204, 298; Romance Languages 290; and a minimum of six upper division or graduate units in Spanish.
- Romance Languages: French 214, 220, 298, or Spanish 201, 204, 298; Romance Languages 290; and a minimum of six upper division or graduate units in French or Spanish.

The comprehensive examination, in lieu of a thesis which is required of candidates for the master of arts degree in French, Spanish, or Romance Languages, consists of a three-hour written examination on language and literature; a two-hour oral examination on French or Spanish civilization, and oral explanation of linguistic constructions and literary passages.

### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

In the graduate program for the general secondary credential, the student must include the courses listed in one of the following areas of concentration:

- French: French 214 and 220.
- Spanish: Spanish 201 and 204.
- Romance Languages: Two courses in the teaching major field to be selected from French 214, 220, and Spanish 201, 204.

Before taking a directed teaching assignment in any foreign language, the candidate for a teaching credential must pass a proficiency examination, administered by the Department of Foreign Languages, in the language and its area civilization.

### ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Arts Degree.

### FACULTY

Department Chairman: Elizabeth M. Brown.  
Graduate Adviser: L. N. Messier, French; C. H. Baker, Spanish.  
General Secondary Credential Adviser: L. N. Messier.  
Professors: Elizabeth M. Brown, Ph.D.; L. N. Messier, Ph.D.; W. T. Phillips, Ph.D.; E. M. Wolf, Ph.D.  
Assistant Professors: C. H. Baker, M.A.; R. H. Lawson, Ph.D.; Gerard Piffard, Ph.D.

### COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN FOREIGN LANGUAGES

#### UPPER DIVISION COURSES

<i>French</i>	<i>Spanish</i>
101A-101B. Conversation and Composition (3-3)	101A-101B. Conversation and Composition (3-3)
105A-105B. Modern French Drama (3-3)	102A-102B. Introduction to Spanish Classics (3-3)
107A-107B. Eighteenth Century Literature (3-3)	104A-104B. Spanish-American Literature (3-3)
110A-110B. Modern French Novel	105A-105B. Modern Spanish Drama (3-3)
111A-111B. Seventeenth Century Dramatic Literature (3-3)	110A-110B. Novel and Short Story in Spain (3-3)
140. French Civilization (2)	140. Spanish Civilization (2)
141. French Civilization (2)	141. Spanish Civilization (2)
150-S. Advanced Phonetics and Diction (3)	198. Comprehensive Reading and Survey Course (3)
198. Comprehensive Reading and Survey Course (3)	

*Related fields:* Related courses in the fields of anthropology, geography, history, political science, comparative literature, and others, may be selected in consultation with and approval of adviser.

#### GRADUATE COURSES IN FRENCH

214. *Contemporary French Literature* (2)  
An intensive study of the current movements and techniques in the novel, poetry, and theater in France from 1900 to the present day. Class discussion, outside readings, written reports. Prerequisite: Nine units of upper division French.
220. *Explication de Textes* (2)  
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. Prerequisite: Nine units of upper division French.
290. *Bibliography* (1) (Offered as Romance Languages 290)  
Exercises in the use of basic reference books, journals, and specialized bibliographies in the field of the Romance languages. Prerequisite: Nine units of upper division French.
298. *Special Study* (1-6)  
Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.
299. *Thesis* (3)  
Guidance in the preparation of a project or thesis for the master's degree. Prerequisites: An officially appointed thesis committee and advancement to candidacy.

Master's degree candidates in French are expected to substitute a comprehensive examination for the thesis. In unusual cases a student may write a thesis with the permission of the department.

#### GRADUATE COURSES IN SPANISH

##### 201. Old Spanish (2)

A study of the language and literature of Spain from the 12th to the 15th centuries. Prerequisite: Nine units of upper division Spanish.

##### 204. Seminar in Spanish-American Literature (2)

Intensive investigation of some phase of Spanish-American literature. A single country, an author, or some special problem will be studied and reported upon. Prerequisite: Nine units of upper division Spanish.

##### 290. Bibliography (1) (Offered as Romance Languages 290)

Exercises in the use of basic reference books, journals, and specialized bibliographies in the field of the Romance languages. Prerequisite: Nine units of upper division Spanish.

##### 298. Special Study (1-6)

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

##### 299. Thesis (3)

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

Master's degree candidates in Spanish are expected to substitute a comprehensive examination for the thesis. In unusual cases a student may write a thesis with the permission of the department.

## GEOGRAPHY

### GENERAL INFORMATION

For graduate work in the Department of Geography leading to the master of arts degree for teaching service with a concentration in social science, refer to the section of this bulletin under Social Science.

### FACULTY

Department Chairman: J. W. Taylor  
Professors: L. C. Post, Ph.D.; R. W. Richardson, Ph.D.; Alvena Storm, M.A.  
Associate Professors: J. W. Taylor, Ph.D.  
Assistant Professors: D. I. Eidemiller, Ph.D.; J. F. Woodruff, Ph.D.; C. C. Yahr, Ph.D.  
Instructors: Alfonso Gonzalez, M.A.

### COURSES ACCEPTABLE ON MASTER OF ARTS DEGREE PROGRAMS

#### UPPER DIVISION COURSES

- |                                    |   |
|------------------------------------|---|
| 100. Climatology (3)               | 150. World Political Geography (3)                    |
| 120. California (3)                | 151. Economic Geography: Primary Production (3)       |
| 121. United States (3)             | 152. Industrial Geography (3)                         |
| 122. Canada and Alaska (3)         | 153. Conservation of Natural Resources (3)            |
| 123. Middle America (3)            | 180. Field Geography (3)                              |
| 124. South America (3)             | 181. Maps and Graphic Methods (3)                     |
| 125. Mediterranean Area (3)        | 182. Use and Interpretation of Aerial Photographs (2) |
| 126. Northern Europe (3)           | 199. Special Study (1-6)                              |
| 127. Soviet Union (3)              |   |
| 128. Southern and Eastern Asia (3) |   |
| 129. Oceania (3)                   |   |

#### GRADUATE COURSES

##### 200A-200B. Seminar (2-2)

##### 290. Bibliography (1) I, II

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

##### 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.

Guidance in the preparation of a project or thesis for the master's degree.

## HEALTH EDUCATION AND PHYSICAL EDUCATION

### GENERAL INFORMATION

The Departments of Men's Physical Education, Women's Physical Education, and Health Education offer graduate work leading to the master of arts degree for teaching service with a concentration in physical education and/or health education. The general secondary credential with teaching majors and minors in these fields is also available. Close liaison between these departments and community agencies offers opportunity for realistic field experiences.

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the credential requirements as applicable, the student must satisfy the general requirements for the master of arts degree, described in Part Two of this bulletin, section on Master of Arts Degree. The concentration consists of a minimum of 18 units in health and physical education selected from courses listed below as acceptable on master's degree programs, of which at least 10 must be in 200-numbered courses. Education 290A-290B and Physical Education 299 are required courses.

### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete a minimum of four units of 200-numbered courses.

Physical Education (men or women): Select from 200-numbered courses in physical education.

Health Education: Select from Health Education 200, 202, and 205.

### ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Arts Degree.

### ASSISTANTSHIPS

Part-time assistantships are available in all three departments. Write to the chairman of the division for information.

### FACULTY

Division Chairman: W. L. Terry

Department Chairmen:

Men's Physical Education: C. W. Benton

Women's Physical Education: Dorothy J. Tollefsen

Health Education: W. H. Lauritsen

Graduate Adviser: F. L. Scott

General Secondary Credentials Advisers: Angela Kitzinger, W. H. Lauritsen

Professors: Paul Governali, Ed.D.; F. W. Kasch, Ed.D.; Angela M. Kitzinger, Ph.D.; W. H. Lauritsen, Ph.D.; F. L. Scott, Ph.D.; W. L. Terry, Ed.D.; George Ziegenfuss, Ed.D.

Associate Professors: C. W. Benton, M.S.; H. H. Broadbent, M.S.; Evelyn Lockman, M.A.; W. H. Schutte, M.S.; Marion L. Schwob, M.S.; Florence S. Shannon, M.S.; C. R. Smith, M.S.; C. C. Sportsman, M.S.; Dorothy J. Tollefsen, M.A.

Assistant Professors: Mary F. Cave, M.A.; R. M. Grawunder, Ed.D.; Margaret M. Murphy, Ed.D.; A. W. Olsen, M.A.; F. N. Vitale, M.A.

## COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN PHYSICAL EDUCATION AND HEALTH EDUCATION

### UPPER DIVISION COURSES

#### Health Education

- 145. Safety Education and Accident Prevention (3)
- 151. Health Education for Teachers (2)
- 152. Health Education Programs (3)
- 153. Administration of the School Health Program (3)
- 154. Workshop in Health Education (2)
- 175. Health in Later Maturity (3)
- 181. Health and Medical Care (3)
- 190. Introduction to Public Health (3)
- 191. Supervised Field Experience (1-3)
- 199. Special Study (1-6)

#### Physical Education

- 122. Water Safety Instruction (1)
- 141. Professional Activities: Gymnastics (men) (2)
- 142. Professional Activities: Swimming (men and women) (1)
- 143. Professional Activities: Coaching Track (men) (1)
- 144. Professional Activities: Coaching Baseball (men) (1)
- 145. Professional Activities: Team Sports (men) (2)
- 146. Professional Activities: Individual Sports (men) (2)
- 147. Professional Activities: Coaching Football (men) (1)

- 148. Professional Activities: Coaching Basketball (men) (1)
- 151. Folk Dancing Materials and Advanced Techniques (women) (2)
- 153A-153B. Problems in Modern Dance (men and women) (2-2)
- 154A-154B. Methods of Teaching Modern Dance (2-2)
- 155. Techniques of Individual Sports (women) (1)
- 156A-156B. Methods of Teaching Team Sports (women) (2-2)
- 157A-157B. Choreography in Contemporary Dance (men and women) (3-3)
- 160. Teaching of Body Mechanics (women) (3)
- 161. Instructor's Course in First Aid (2)
- 167. Applied Anatomy and Kinesiology (3)
- 168. Physiology of Exercise (3)
- 169. Adapted Activities (3)
- 170A-170B. Recreational Leadership (2-2)
- 190. Administration of Physical Education in the Secondary School (3)
- 199. Special Study (1-6)

### GRADUATE COURSES

#### Health Education

- 200. Evaluation Procedures in Physical Education, Health Education and Recreation (3)  
A study of tests and measurements in the profession with practice in their use, construction and interpretation of results. Not open to students with credit for Physical Education 200.
- 202. Problems in Health Education (3) (Offered in alternate years)  
Current problems in Health Education, studied through a review of the literature, discussion of trends, observation of school situations, together with the analysis and evaluation of actual problems. Written reports required.
- 205. Curriculum in Physical Education and Health Education (3)  
Analysis of current curricula in physical education and health education, with special emphasis upon curriculum construction and evaluation. Not open to students with credit for Health Education 205.
- 210. Seminar (3)  
Prerequisites: Major or minor in health education, physical education, or a closely related area, or consent of instructor.  
Seminars are offered in the following areas of health education. None of the fields may be repeated for credit.
  - A. Stimulants and depressants
  - B. Communicable and noncommunicable disease
  - C. Dental health

**298. Special Study (1-6)**

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

**299. Thesis (3)**

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

*Physical Education*

**200. Evaluation Procedures in Physical Education, Health Education and Recreation (3)**

A study of tests and measurements in the profession, with practice in their construction and use, and interpretation of results. Not open to students with credit for Health Education 200.

**201. Developmental Physical Education (3)**

Intensive study of postural divergencies, lack of physical development, and methods of correcting such conditions through exercise. Practice in making physical examinations, constructing individual exercise programs, and teaching remedial exercises. Consideration of ethical procedures and limitations. Prerequisite: Physical Education 167.

**203. Problems in Physical Education (3)**

A survey of current problems facing the physical education profession, through a review of literature, discussion of trends, and observation of school situations. Analysis and evaluation of actual problems. Written reports required.

**204. Problems in Recreation (3)**

A survey of current problems facing the recreation profession, through a review of literature, discussion of trends, and observation of school situations. Analysis and evaluation of actual problems. Written reports required. Not open to students with credit for Recreation 204.

**205. Curriculum in Physical Education and Health Education (3)**

Analysis of current curricula in physical education and health education, with special emphasis upon curriculum construction and evaluation. Not open to students with credit for Health Education 205.

**210. Seminar (3)**

Seminars in physical education are offered for intensive study in each of the fields listed below. Prerequisites: Major or minor in physical education, or a closely related area, and consent of instructor.

- A. Facilities—indoor and outdoor activity areas.
- B. Competitive Athletics for Men, including major and minor sports.
- C. History and philosophy of physical education.
- D. Women's sports programs.
- E. Dance programs.

**298. Special Study (1-6)**

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

**299. Thesis (3)**

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

## HISTORY

### GENERAL INFORMATION

The Department of History offers graduate work leading to the master of arts degree with a major in history, and to the master of arts degree for teaching service with a concentration in history. (Students may also take work leading to the master of arts degree for teaching service with a concentration in social science. Refer to the section of this bulletin on social science.)

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One 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.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include either a major or a concentration defined as follows:

**Major:** A minimum of 24 units in history from courses listed below as acceptable on master's degree programs, at least 12 of which must be in 200-numbered courses. History 201, History 299, and at least one six-unit seminar are required. Students are required to demonstrate a reading knowledge of French, German, or Spanish.

**Concentration:** A minimum of 18 units in history from courses listed below as acceptable on master's degree programs in history, of which at least eight units must be in 200-numbered courses. A thesis is required. (Students must also satisfy the requirements for a California school service credential.)

### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Students who wish to earn a general secondary credential with a concentration in history must secure the credential under a social science major. A history minor is available to students with a major other than social science. History 290 and the six unit seminar which are required for the master's degree may be counted as electives in the general secondary credential program.

### ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Arts Degree.

### SCHOLARSHIPS

The K. W. Stott Scholarship, in the amount of \$100, is awarded each June to a student who has attended San Diego State College for at least two years and who is being graduated or has been graduated by San Diego State College with a major in history. The recipient must continue work in San Diego State College, 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

Department Chairman: L. U. Ridout  
Graduate Adviser: A. P. Nasatir  
General Secondary Credential Adviser: D. S. Milne  
Professors: A. T. Johnson, M.A.; A. P. Nasatir, Ph.D.; Katherine Ragen, Ph.D.;  
L. U. Ridout, Ph.D.; K. J. Rohfleisch, Ph.D.; C. R. Webb, Jr., Ph.D.  
Associate Professors: J. E. Merrill, Ph.D.; S. J. Pincetl, Jr., Ph.D.; D. L. Rader,  
Ph.D.  
Assistant Professors: William Hanchett, Ph.D.; Martin Ridge, Ph.D.; M. Van Aken,  
Ph.D.; W. R. Wineman, Ph.D.

## COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN HISTORY

### UPPER DIVISION COURSES

- |  |   |
|--|---|
| 111A-111B. Ancient History (3-3)                             | 172A-172B. Development of the Federal Union (3-3)             |
| 121A-121B. Medieval History (3-3)                            | 173A-173B. The Expansion of the United States (3-3)           |
| 131A-131B. Renaissance and Reformation (3-3)                 | 174. Emergence of the United States as a World Power (3)      |
| 141. Europe in the Seventeenth and Eighteenth Centuries (3)  | 175A-175B. The United States in the Twentieth Century (3-3)   |
| 142. The French Revolution and Napoleonic Era (3)            | 176A-176B. American Foreign Policy (3-3)                      |
| 143A-143B. Europe in the Nineteenth Century (3-3)            | 179A-179B. Intellectual History of the American People (3-3)  |
| 144A-144B. Europe in the Twentieth Century (3-3)             | 181A-181B. History of the West (3-3)                          |
| 147A-147B. Expansion of Russia (3-3)                         | 189. History of California (3)                                |
| 151A-151B. History of England (3-3)                          | 190A-190B. History of the Pacific Ocean Area (3-3)            |
| 156A-156B. History of British and European Imperialism (3-3) | 191A-191B. History of the Far East (3-3)                      |
| 161. Mexico and Caribbean Countries (3)                      | 193. History of China (3)                                     |
| 162. South America Since Independence (3)                    | 194. History of Japan (3)                                     |
| 171A-171B. Rise of the American Nation (3-3)                 | 198. Introduction to Historiography and Historical Method (2) |
|  | 199. Special Study (1-6)                                      |

### GRADUATE COURSES

201. **Historiography and Historical Method (3)**  
Required of all applicants for advanced degree in history. Open to social science majors.
- 251A-B. **Seminar in English History (3-3)**  
Directed research in selected aspects of English history. Prerequisite: Permission of instructor. History 251A is a prerequisite for 251B.
- 270A-B. **Seminar in American History (3-3)**  
An introduction to intensive investigation of various phases of American History. Prerequisite: Permission of instructor. History 270A is a prerequisite for 270B.
- 276A-B. **Seminar in Diplomatic History (3-3)**  
Selected topics in recent diplomatic relations. Prerequisite: Permission of instructor. History 276A is a prerequisite for 276B.
- 281A-B. **Seminar in the History of the West and California (3-3)**  
Directed research in various topics in the history of the West and California. Prerequisite: Permission of the instructor. History 281A is a prerequisite for 281B.
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. Credit and grade may be deferred until completion of the thesis course, 299.

### 298. Special Study (1-6)

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

### 299. Thesis (3)

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

## HOME ECONOMICS

### GENERAL INFORMATION

The Department of Home Economics offers graduate work for the general secondary teaching credential with a teaching major or minor in home economics.

A new home economics building with specialized equipment and a home management residence have greatly increased the facilities available for graduate study.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential with a teaching major in home economics must complete four units of Home Economics 200 or 298.

### FACULTY

Department Chairman: Ruth A. Talboy

Graduate Adviser: Jo S. Pahopin

General Secondary Credential Adviser: Ruth A. Talboy

Associate Professors: Norita N. Comin, B.S.; Helen L. Dorris, M.S.; Jo S. Pahopin, Ph.D.; Ruth A. Talboy, M.A.; Alice E. Thomas, M.A.

Assistant Professor: Mary Martin, M.S.

### GRADUATE COURSE

#### 200. Seminar (3)

Prerequisite: Home economics major or equivalent.

Seminars are offered in each of the following fields of home economics. None of the fields may be repeated for credit.

- A. Food and Nutrition
- B. Home Management and Family Economics
- C. Textiles and Clothing
- D. Home Economics Education and Organization
- E. Child Care and Development.

#### 298. Special Study (1-6)

Individual study. Six units maximum credit.

Prerequisite: Consent of staff; to be arranged with department chairman and instructor.

## INDUSTRIAL ARTS

### GENERAL INFORMATION

The Department of Industrial Arts offers graduate work leading to the master of arts degree for teaching service with a concentration in industrial arts, and the general secondary credential with a teaching major or minor in industrial arts. The Department of Industrial Arts makes it possible for students to gain advanced experiences in one of the most modern shop buildings in the west. Twenty thousand square feet of floor space with new equipment are devoted to work in woods, metals, transportation (auto mechanics), graphic arts, electricity-radio, photography, industrial drawing, comprehensive general shop and handicrafts. An additional building which will more than double our facilities is being planned. Graduate students have the opportunity to participate in the planning and organization of this expanding program.

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the credential requirements as applicable, the student must satisfy the general requirements for the master of arts degree, described in Part Two of this bulletin, section on Master of Arts Degree. In addition, he must complete a concentration consisting of a minimum of 18 units in industrial arts from courses listed below as acceptable on master's degree programs, of which at least 10 must be in 200-numbered courses. Education 290A-290B and Industrial Arts 299 are required courses.

### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential with a major in industrial arts must take six units of Industrial Arts 200, Seminar.

### ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, as described in Part Two of this bulletin under Master of Arts Degree.

### ASSISTANTSHIPS

A limited number of graduate teaching assistantships are available in industrial arts. Application should be made to the Chairman of the Department of Industrial Arts.

### FACULTY

Department Chairman: Kenneth Phillips

Graduate Adviser: Kenneth Phillips

General Secondary Adviser: Kenneth Phillips

Professor: Kenneth Phillips, Ph.D.

Associate Professors: W. C. Anderson, Ph.D.; L. W. Luce, Ed.D.

Assistant Professors: W. B. Ford, B.E.; F. J. Irgang, Ph.D.; W. L. McLoney,

M.A.; James McMullen, Ed.D.; D. W. Thiel, M.A.

Instructor: R. D. O'Dell, M.A.

**COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS  
IN INDUSTRIAL ARTS**

**UPPER DIVISION COURSES**

- |   |  |
|---|--|
| 101. Handicrafts for Teachers (3)                                   | 153. Materials and Techniques for Teaching General Woodworking (3) |
| 102. Materials and Techniques for Teaching Handicrafts (3)          | 161. Electricity-Radio (3)   |
| 105-S. Construction Activities for Teachers (3)                     | 162. Electricity-Radio for Teachers (3)                            |
| 111. General Shop for Teachers (3)                                  | 163. Materials and Techniques for Teaching Electricity-Radio (3)   |
| 112. Materials and Techniques for Teaching General Shop (3)         | 171. Transportation (3)  |
| 121. Industrial Drawing (3)   | 172. Transportation for Teachers (3)                               |
| 122. Industrial Drawing for Teachers (3)                            | 173. Materials and Techniques for Teaching Transportation (3)      |
| 123. Materials and Techniques for Teaching Industrial Drawing (3)   | 181. Graphic Arts (3)  |
| 131. General Metalworking (3)                                       | 182. Graphic Arts for Teachers (3)                                 |
| 132. General Metalworking for Teachers (3)                          | 183. Materials and Techniques for Teaching Graphic Arts (3)        |
| 133. Materials and Techniques for Teaching General Metalworking (3) | 185. Photography for Teachers (3)                                  |
| 151. General Woodworking (3)  | 186. Advanced Photography (3)                                      |
| 152. General Woodworking for Teachers (3)                           | 190. Experimental Shop (1 or 2)                                    |
|   | 193. Industrial Arts Organization and Management (2)               |
|   | 194. Recent Trends in Industrial Arts Education (2)                |
|   | 199. Special Study (1-6)   |

**GRADUATE COURSES**

200. Seminar (3)  
An intensive study of one phase of industrial education: (a) development of the industrial arts curriculum; (b) shop organization and management; (c) supervision and administration; (d) evaluation; (e) problems of shop planning; (f) history and philosophy of industrial education. May be repeated with new materials for additional credit.
201. Advanced Teaching Problems (3)  
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 general shop. Stress on project design and visual materials. Prerequisites: Teaching experience in area selected and permission of instructor. May be repeated with new materials for additional credit.
267. Field Work in Industrial Arts (3)  
Application of the principles of shop organization, management and planning in reference to the objectives of industrial arts in development of school programs. Prerequisites: Permission of instructor. Industrial Arts 200 and industrial arts teaching experience. May be repeated with different material to a total of six units of credit.
290. Bibliography (1)  
Exercise in the use of basic reference books, professional literature, and specialized bibliographies, preparatory to the writing of a master's thesis.
298. Special Study (1-6)  
Individual study. Six units maximum credit. Prerequisite: Permission of staff; to be arranged with department chairman and instructor.
299. Thesis (3)  
Guidance in the preparation of a thesis in industrial arts for the master's degree. Prerequisites: An officially appointed thesis committee and advancement to candidacy.

**LIFE SCIENCES**

**GENERAL INFORMATION**

The Departments of Biology-Zoology, Botany, and Microbiology offer graduate work leading to the master of arts degree with a major in biology, the master of arts degree for teaching service with a concentration in life science, and the master of science degree in applied biology. The major for the master of arts degree in biology may contain an emphasis in the areas of ecology, genetics, microbiology, and physiology. In the master of science degree, the emphasis may be placed on economic entomology, fishery biology, medical technology, and radiation biology. The general secondary credential with a teaching major or minor in life science is also offered.

Excellent facilities for graduate study are available in this community, such as the Zoo Hospital, affiliated laboratories of the San Diego Biomedical Research Institute, the United States Department of Agriculture, Fish and Game Commission, and the Alvarado Filtration Plant of the City of San Diego. On the campus, the Health Services offer fine facilities for persons interested in clinical fields.

**ADMISSION TO REGULAR GRADUATE STANDING**

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

- (a) Have an undergraduate major in one of the biological sciences, including basic undergraduate courses in the precise area (biology, botany, microbiology, or zoology) of the master's degree program in life science. Courses taken to remove deficiencies in the undergraduate major are in addition to those specifically required for the master's degree.
- (b) Satisfactorily complete a qualifying examination in the biological sciences.

**SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS**

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include either a major or a concentration, defined as follows:

**Major:** A minimum of 24 units in life science from courses listed below as acceptable on master's degree programs (excluding Biology 296, Directed Field Experience), of which at least 12 units must be in 200-numbered courses, including the thesis. A reading knowledge of scientific French, German, or Russian, and a final oral examination on the field of the thesis are also required.

**Concentration:** A minimum of 18 units in life science from courses listed below as acceptable on master's degree programs (excluding Biology 296, Directed Field Experience), of which at least 10 units must be in 200-numbered courses, including the thesis. (Students must also satisfy the requirements for a California school service credential.)

**SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF SCIENCE PROGRAMS**

In addition to meeting the requirements for regular graduate standing, the student must satisfy the general requirements for the master of science degree, described in Part Two of this bulletin, section on Master of Science Degree. The student must also meet the following departmental requirements:

- (a) A minimum of 12 units of graduate level (200-numbered) courses in one of the following fields: biology, botany, microbiology, or zoology.
- (b) A minimum of 24 units of upper division or graduate courses selected from biology, botany, microbiology, or zoology. Remaining units may be taken in these, or closely related fields.

(c) Either (1) a thesis or a project (Plan A) or (2) a comprehensive examination in lieu of the thesis or project (Plan B). Both plans are available in all four areas of concentration for the degree. If Plan A is selected, the student must satisfactorily defend his thesis or project. If Plan B is selected, the student must obtain a satisfactory score on the final comprehensive examination administered prior to the granting of the degree.

#### ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, which are described in Part Two of this bulletin.

#### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete a minimum of four units of 200-numbered courses in the biological sciences, excluding Biology 296, Directed Field Experience.

#### ASSISTANTSHIPS

A limited number of assistantships are available in the life sciences. Make application to the chairman of the Division of Life Sciences.

#### FACULTY

Division Chairman: R. D. Harwood

Department Chairman: D. R. Harvey, Botany; M. A. Myers, Microbiology; A. C. Olson, Biology-Zoology.

Graduate Advisers:

Master of Arts: Biology, F. J. Ratty; Botany, A. H. Gallup; Microbiology, M. A. Myers; Teaching, A. H. Gallup; Zoology, G. H. Tucker

Master of Science: Biology, E. W. Huffman; Botany, A. H. Gallup; Microbiology, M. A. Myers; Zoology, G. H. Tucker

General Secondary Credential Adviser: A. H. Gallup

Professors J. E. Crouch, Ph.D.; R. D. Harwood, Ph.D.; M. A. Myers, Ph.D.; A. C. Olson, Ph.D.; K. M. Taylor, Ph.D.; G. H. Tucker, Ph.D.

Associate Professors: K. K. Bohnsack, Ph.D.; R. W. Crawford, Ph.D.; A. H. Gallup, Ph.D.; D. L. Jameson, Ph.D.; D. A. Preston, Ph.D.; F. J. Ratty, Ph.D.

Assistant Professors: E. G. Barham, Ph.D.; C. L. Brandt, Ph.D.; D. R. Harvey, M. A.; E. W. Huffman, Ph.D.; W. A. McBlair, Ph.D.; C. E. Norland, M.S.; D. C. Shepard, Ph.D.; M. A. Taylor, M.S.; H. A. Walch, Ph.D.

#### COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS

##### UPPER DIVISION COURSES

###### Biology

- 101. General Physiology (4)
- 102. Principles of Taxonomy (2)
- 103. General Cytology (4)
- 110. Ecology (4)
- 111. Aquatic Biology (4)
- 112. Fishery Biology (2)
- 150A-150B. Radiation Biology (2-2)
- 155. Genetics (4)
- 158. Conservation of Wildlife (3)
- 160. Experimental Evolution (3)
- 161. History of Biology (3)
- 198. Methods of Investigation (2)

###### Microbiology

- 101. General Bacteriology (Microbiology) (4)
- 102. Advanced Bacteriology (4)
- 103. Fundamentals of Immunology and Serology (4)
- 104. Medical Mycology (3)
- 105. Bacterial Metabolism (2)
- 107. Virology (2)
- 109. Hematology (3)
- 199. Special Study (1-6)

#### Botany

- 104. Plant Anatomy (3)
- 107. Plant Physiology (4)
- 112. Cultivated Trees and Shrubs (3)
- 114. Systematic Botany (4)
- 126. Plant Pathology (4)
- 162. Agricultural Botany (2)
- 199. Special Study (1-6)

#### Zoology

- 100. Embryology (4)
- 108. Histology (4)
- 112. Marine Invertebrates (4)
- 114. Natural History of the Vertebrates (4)
- 115. Ichthyology (4)
- 117. Ornithology (4)
- 121. General Entomology (4)
- 122. Advanced Entomology (4)
- 123. Immature Insects (3)
- 125. Economic Entomology (4)
- 126. Medical Entomology (3)
- 128. Parasitology (4)
- 142. Comparative Animal Physiology (4)
- 199. Special Study (1-6)

#### GRADUATE COURSES

##### Biology

- 210. Seminar in Cellular Biology (2)  
Prerequisite: Biology 101 or 103, or consent of instructor.
- 220. Seminar in Growth and Development (2)  
Prerequisite: Zoology 100 or consent of instructor.
- 230. Seminar in Speciation (2)  
Prerequisite: Biology 155 or 160, or consent of instructor.
- 240. Seminar in Ecology (2)  
Prerequisite: Biology 110 or 112, or consent of instructor.
- 250. Seminar in Biogeography (2)  
Prerequisite: Biology 110 or 160, or consent of instructor.
- 260. Seminar in General Physiology (2)  
Prerequisite: Biology 101 or Botany 107, or consent of instructor.
- 270. Seminar in Genetics (2)  
Prerequisite: Biology 155 or consent of instructor.
- 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.
- 296. Directed Field Experience (1-6)  
Experience in local laboratories (and field stations) under supervision. Meets requirements of directed field experience for candidates for the master of science degree. Required in addition to the 30-unit requirement for the degree, when previous experience is lacking or not acceptable.
- 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 or Project (3)  
Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Guidance in the preparation of a project or thesis for the master's degree.

##### Botany

- 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 or Project (3)  
Prerequisites: An officially appointed thesis committee and advancement to candidacy.

### Microbiology

210. **Seminar in Medical Bacteriology (2)**  
Prerequisite: Microbiology 102 or consent of instructor.
220. **Seminar in Industrial and Agricultural Microbiology (2)**  
Prerequisite: Microbiology 101 or consent of instructor.
230. **Seminar in Medical Mycology (2)**  
Prerequisite: Microbiology 104 or consent of instructor.
240. **Seminar in General Microbiology (2)**  
Prerequisites: Microbiology 101 and 105, or consent of instructor.
250. **Seminar in Virology (2)**  
Prerequisite: Microbiology 107 or consent of instructor.
260. **Seminar in Immunology and Serology (2)**  
Prerequisite: Microbiology 103 or consent of instructor.
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 or Project (3)**  
Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Guidance in the preparation of a project or thesis for the master's degree.

### Zoology

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 or Project (3)**  
Prerequisites: An officially appointed thesis committee and advancement to candidacy.  
Guidance in the preparation of a project or thesis for the master's degree.

## MATHEMATICS

### GENERAL INFORMATION

The Department of Mathematics offers graduate work leading to the master of arts degree with a major in mathematics, to the master of arts degree for teaching service with a concentration in mathematics, and to the master of science degree in mathematics. The general secondary credential with a teaching major or minor in mathematics is also available.

### MATHEMATICS INSTITUTE

Under a grant from the National Science Foundation, the Department of Mathematics is offering an Institute for Secondary School Teachers of Mathematics during the academic year 1959-1960 and in the 1960 summer session. Dr. J. E. Eagle is the Director of the Institute. (For further information, see description in Part I of this bulletin.)

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include either a major or a concentration defined as follows:

**Major:** A minimum of 24 units in mathematics (excluding Mathematics 296) from courses listed below as acceptable on master's degree programs. At least 12 units must be in 200-numbered courses in mathematics, exclusive of Mathematics 290 and Mathematics 299. The student is required to demonstrate a reading knowledge of French, German, or Russian and to pass a final oral and written comprehensive examination in mathematics. With approval of the department, a student may elect Plan A, in which case, the comprehensive examination will also cover the thesis. In other cases, Plan B will be followed.

**Concentration:** A minimum of 18 units in mathematics selected from courses listed below as acceptable on master's degree programs in mathematics, of which at least 10 units must be in 200-numbered courses. Subject to the approval of the department, a student may elect Plan A, in which case an oral examination on the thesis is required. If Plan B is followed, the comprehensive examination will be both oral and written. (The student must also satisfy the requirements for a California school service credential.)

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF SCIENCE PROGRAM

In addition to meeting the requirements for regular graduate standing, the student must satisfy the general requirements for the master of science degree, described in Part Two of this bulletin, section on Master of Science Degree. The student must also meet the following departmental requirements:

- Obtain a satisfactory score on departmental examination prior to obtaining department's recommendation for advancement to candidacy.
- Complete 12 units of 200-numbered mathematics courses, not including Mathematics 290, 296, or 299.
- Complete nine additional units of graduate level or approved upper division mathematics courses, not including Mathematics 290, 296, or 299.
- Complete nine additional units of approved electives.
- Subject to the approval of the department, select Plan A or Plan B. If Plan A is selected, the department will require an oral examination in addition to the thesis. If Plan B is followed, the Comprehensive Examination will be both oral and written.

### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete four units of graduate level (200-numbered) courses in mathematics.

### ADVANCEMENT TO CANDIDACY

All students must satisfy the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Arts or Master of Science Degree.

### SCHOLARSHIPS AND ASSISTANTSHIPS

Various scholarships and assistantships ranging from faculty tuition fees to \$2,148 per year are available to qualified graduate students. Details may be obtained from the department chairman.

### FACULTY

Department Chairman: L. G. Riggs  
Graduate Advisers: Master of Arts (major), L. J. Warren; Master of Arts (Teaching), M. F. Willerding; Master of Science, N. B. Smith  
General Secondary Adviser: J. E. Eagle  
Professors: J. E. Eagle, Ed.D.; V. C. Harris, Ph.D.; A. R. Harvey, Ph.D.; M. M. Lemme, Ph.D.; L. G. Riggs, Ph.D.  
Associate Professors: R. D. Branstetter, Ph.D.; N. B. Smith, Ph.D.; L. J. Warren, Ph.D.; Margaret Fr. Willerding, Ph.D.  
Assistant Professors: G. A. Becker, M.S.; C. B. Bell, Jr., Ph.D.; C. V. Holmes, Ph.D.; J. M. Moser, Ph.D.; P. W. Shaw, Ph.D.  
Instructors: A. A. Aldrich, M.A.; R. A. Guidal, M.S.; K. A. MacDonald, M.S.

### COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN MATHEMATICS

#### UPPER DIVISION COURSES

- |  |  |
|--|--|
| 105. College Geometry (3)                                      | 170. Partial Differential Equations (3)                              |
| 106. Projective Geometry (3)                                   | 177. Quality Control (3)   |
| 107. Non-Euclidean Geometry (3)                                | †180A. Recent Trends in Teaching and Applications of Mathematics (2) |
| 111. Theory of Algebraic Equations (3)                         | †180B. Continuation of 180A (2)                                      |
| 112. Analytic Geometry of Space (3)                            | †181A. Selected Topics of Secondary School Mathematics (2)           |
| 118A-118B. Advanced Mathematics for Engineering Students (3-3) | †181B. Continuation of 181A (2)                                      |
| 119. Differential Equations (3)                                | †183. Modern Algebra (3)   |
| 121A-121B. Advanced Calculus (3-3)                             | †185. Modern Geometry (3)  |
| 124. Vector Analysis (3)                                       | †187. Statistics for High School Teachers (3)                        |
| 134. Probability (3)   | 196. Advanced Topics in Mathematics (2 or 3)                         |
| 135. Numerical Analysis and Computation I (3)                  | 199. Special Study (1-6)   |
| 136. Numerical Analysis and Computation II (3)                 |  |
| 140A-140B. Mathematical Statistics (3-3)                       |  |

† For National Science Foundation students only.

#### GRADUATE COURSES

200. Seminar (2-3)  
An intensive study of one phase of mathematics, such as topology, integral equations, calculus of variations, tensor analysis, theory of numbers, ordinary differential equations, differential geometry, theoretical statistics. May be repeated with new subject matter for additional credit.
- 210A-210B. Mathematics of Physics. (3-3)  
Selected 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. Prerequisite: Admission into a master's degree program.

#### 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) II

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. Prerequisite: Mathematics 170 or equivalent.

#### 224A-224B. Functions of a Complex Variable (3-3)

Concept of analytic functions, complex integration, residues, power series, conformal mapping. Prerequisites: Mathematics 119 and 121B.

#### 224X-Y-Z. Functions of a Complex Variable (2-2-2)

Same as Mathematics 224A-224B, but given over a three-semester period.

#### 226A-226B. Functions of a Real Variable (3-3)

Point sets, functions and limits, continuity, differentiation, Riemann and Lebesgue integration. Prerequisites: Mathematics 119 and 121B.

#### 226X-Y-Z. Functions of a Real Variable (2-2-2)

Same as Mathematics 226A-226B, but given over a three-semester period.

#### 230A-230B. Abstract Algebra (3-3)

Groups, rings, integral domains, fields, matrices and linear algebra. Prerequisite: Mathematics 121A.

#### 230X-Y-Z. Abstract Algebra (2-2-2)

Same as Mathematics 230A-230B, but given over a three-semester period.

#### 287. Intermediate Analysis (3)

Axioms of the real number system, mathematical induction, functions and sequences, limit theorems and various limiting processes. Open to National Science Foundation students only.

#### 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.

#### 296. Directed Field Experience (1-6)

Meets the requirement of directed field experience for candidates for the master of science degree, but is not limited to candidates for the degree. Required in addition to the 30-unit requirement for the degree, when previous experience is lacking or not acceptable.

#### 298. Special Study (1-6)

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

#### 299. Thesis or Project (3)

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

## MUSIC

### GENERAL INFORMATION

The Department of Music offers graduate work leading to the master of arts degree with a major in music and the master of arts degree for teaching service with a concentration in music. The general secondary credential with a teaching major or minor in music is also available.

The Music Department offers a special graduate course (Seminar in Choral Art) each summer. Guest faculty members are Dr. Roger Wagner, conductor of the internationally-known Roger Wagner Chorale; Dr. Jan Popper, musicologist and authority on operatic literature; and John Wustman, pianist, vocal coach, choral conductor, and accompanist with the Robert Shaw Chorale. The seminar program is integrated with the San Diego Symphony Summer Series where one major choral work is performed with the San Diego Symphony and a series of smaller concerts is presented with the Seminar Chorus. (See Music 218, Seminar in Choral Art.)

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division. In addition, students planning to work toward the nonteaching master of arts degree with a major in music must pass a qualifying examination.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include either a major or a concentration defined as follows:

**Major:** A minimum of 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. Music 290 and Music 299 are required. The thesis may, with approval of the Music Department faculty, consist in part of a lecture-recital. The student is required to pass a final oral examination on his thesis.

**Concentration:** A minimum of 18 units from courses listed below as acceptable on master's degree programs in music, of which at least eight must be in 200-numbered courses. Music 290, and Music 299 are required. Education 290A is recommended. The thesis may, with approval of the Music Department faculty, consist in part of a lecture-recital. (The student must also satisfy the requirements for a California school service credential.)

### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete four units to be selected from the following courses: Music 200A-200B, Special Problems in Music; 203A-203B, Musicology; and 206A-206B, Composition.

All students must satisfy the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Arts Degree.

### SCHOLARSHIPS

Information on music scholarships may be obtained by writing to the Chairman, Music Scholarship Committee, Music Department, San Diego State College.

### FACULTY

Department Chairman: J. Dayton Smith  
Graduate Advisers: Master of Arts (Major), J. Dayton Smith, C. Springston;  
Master of Arts (Teaching), J. Dayton Smith

General Secondary Credential Advisers: P. V. Anderson; R. C. Flye; Norman Rost; J. Dayton Smith; M. S. Snider  
Professors: J. Dayton Smith, M.M.; Christine Springston, M.A.  
Associate Professors: Norman Rost, M.M.; D. F. Smith, M.M.; M. S. Snider, M.A.  
Assistant Professors: P. V. Anderson, M.M.; M. R. Biggs, M.F.A.; J. D. Blyth, M.M.; R. C. Flye, M.A.; C. K. Genzlinger, M.A.; L. C. Hurd, M.M.; B. B. Kemp, M.M.  
Lecturers: G. A. Back; C. W. Mullenix

### COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN MUSIC

#### UPPER DIVISION COURSES

- |  |   |
|--|---|
| 102A. Chamber Music Literature (2)                           | 123-S. Workshop in instrumental Techniques and Chamber Music for Strings, Woodwind, and Brass Instruments (2) |
| 102B. Keyboard Literature (2)                                | 141. Methods in Teaching Piano (3)  |
| 103A. Symphonic Literature (2)                               | 142. Survey of Harmony and Musical Form (2)   |
| 103B. Song Literature (2)                                    | 146A. Choral Conducting (1)   |
| 105. Modern Harmonic Practice and Four-Part Counterpoint (3) | 146B. Instrumental Conducting (1)   |
| 106. Sixteenth Century Counterpoint (3)                      | 152A-152B. History of Music (2-2)   |
| 107. Composition (3)   | 153. Opera Technique (2)  |
| 109A-109B. Instrumentation and Arranging (2-2)               | 199. Special Study (1-6)  |

#### GRADUATE COURSES

200. **Seminar in Music Education** (3)  
A. Supervision of Music Education  
B. Junior High School Music  
C. Marching Band Technic  
D. Instrumental Methods  
E. Choral Methods

Prerequisite: Consent of instructor.

Seminars in music education are offered to provide an opportunity for concentrated study in the several areas listed.

203. **Musicology** (3)

Prerequisites: Music 152A and 152B.

Problems and methods of research in aesthetics, acoustics, music history and related fields. Source materials, bibliography. Comparative investigations of musical systems. Analytical and structural studies. Completion of written project.

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 final project.

208. **Seminar: Music Theory** (3)

Prerequisite: Music 108.

Seminar in the history of theoretical materials and procedures from the 12th Century to the present with detailed analysis of selected major works.

209. **Advanced Orchestration** (2)

Prerequisites: Music 109B, 102A, and 103A.

Intensive work in the practical scoring for ensemble, full orchestra, and symphonic band. Score analysis. Selected works of the class members will be performed.

218. **Seminar in Choral Art** (6) **Summer**

A study of choral and chamber music performed by seminar participants in the College Chorus, the San Diego Symphony Orchestra, and Chamber Music Concerts. Development of analytical technique; study of vocal techniques, of the larger forms, and of styles, including performing practices of the baroque and

later periods. Total credit for Music 118-S and Music 218 limited to 18 units, with a limit of six units which may be applied to the master's degree. (Formerly Music 207.)

**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 (1)**

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 two units.

Piano	Oboe	French Horn	Percussion
Organ	Clarinet	Trumpet	Violin
Voice	Saxophone	Trombone	Viola
Flute	Bassoon	Baritone Horn	Cello
		Tuba	Contrabass

**252. Seminar: 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 Baroque Era
- B. Music of the 18th and 19th Centuries
- C. Twentieth Century Music

**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.

**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 or Project (3)**

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

## PHYSICS

### GENERAL INFORMATION

The Department of Physics offers graduate work leading to the master of arts degree with a major in physics, the master of arts degree for teaching service with a concentration in physics, and the master of science degree with a major in physics. A teaching major in physical science and general science is available for physics. A teaching major in physical science and general science is available for physics. The general secondary credential. The master of science degree is designed to augment the student's undergraduate training by an additional fifth year of more advanced study in the various fields of physics. The curriculum provides a choice in several areas of concentration. Students may pursue advanced studies in any of the following branches of physics: (1) acoustics, (2) astrophysics, (3) electronics, (4) microwaves, (5) nuclear physics, (6) physical optics, (7) radiological physics, (8) reactor physics, (9) solid state physics, (10) spectroscopy. Experimental facilities are available in these fields in the physics curriculum.

The present physics building was completed in 1954. The valuation of the existing facilities exceeds one million dollars. Within the next year the planned expansion will more than triple the existing facilities in 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 stimulation through seminars and scientific meetings in the area. Excellent opportunities exist for summer employment in these agencies for the acquisition of industrial field experience.

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division. In addition, the undergraduate preparation in physics must have substantially satisfied the undergraduate requirements for the bachelor of arts or bachelor of science 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 as an unclassified graduate, are in addition to the minimum of 30 units for the master of arts degree or the 30 to 36 units for the master of science degree.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include either a concentration or a major defined as follows:

**Major:** A minimum of 24 units from courses listed below as acceptable on master's degree programs in physics (excluding Physics 290 and 296). At least 15 units must be in 200-numbered courses in physics (excluding Physics 298). Physics 210A-210B and 299 are required. 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.

**Concentration:** A minimum of 18 units from courses listed below as acceptable on master's degree programs in physics, of which at least 10 units must be in 200-numbered courses. A thesis is required. (The student must also satisfy the requirements for a California school service credential.)

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF SCIENCE PROGRAMS

In addition to meeting the requirements for regular graduate standing, the student must satisfy the general requirements for the master of science degree, as described in Part Two of this bulletin under Master of Science Degree. Subject to the approval of the department, the student may elect Plan A, with the thesis, or Plan B, with the comprehensive examination in lieu of the thesis. The student must also meet the following departmental requirements:

- (a) Take the qualifying examination in physics no later than the first semester in residence.
- (b) Prepare a program of studies in consultation with his departmental advisory committee to incorporate the following: (1) 12 units of graduate level (200-numbered) courses in physics excluding Physics 290, 296, 298, and 299; nine units of graduate level or approved upper division courses in physics excluding Physics 290, 296, and 299; nine units of electives approved by his departmental committee and excluding Physics 290.
- (c) Complete the requirement for Physics 296, Directed Field Experience, as described in Part Two of this bulletin in the section on the Master of Science Degree.

#### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete four units selected from graduate level (200-numbered) courses in Physics or Chemistry as required in the teaching major in physical science and general science.

#### ADVANCEMENT TO CANDIDACY

In addition to the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Arts or Master of Science Degree, the student must pass a qualifying examination in physics administered by the Department of Physics.

#### SCHOLARSHIPS AND ASSISTANTSHIPS

The Department of Physics invites applications for teaching assistantships. The applicant must qualify for admission to the Graduate Division with regular graduate standing. Appointments are made on the basis of scholastic merit. Teaching assistants devote approximately 12 hours per week to instruction in the physics laboratory. The remainder of their time must be devoted to course work. A number of \$1,000-a-year scholarships are available to qualified graduate students. For more details consult with the Chairman of the Department of Physics.

#### FACULTY

Department Chairman: L. L. Skolil  
 Graduate Advisers: Master of arts, L. E. Smith, Jr.; Master of science, L. L. Skolil  
 General Secondary Credential Adviser: L. E. Smith, Jr.  
 Professors: C. R. Moe, Ph.D.; L. L. Skolil, Ph.D.; L. E. Smith, Jr., Ph.D.  
 Associate Professors: J. D. Garrison, Ph.D.; H. R. Snodgrass, Ph.D.; J. G. Teasdale, Ph.D.  
 Assistant Professors: Francis Coleman, Ph.D.; Robert Doolittle, Ph.D.; R. H. Morris, Ph.D.; Power Sogo, Ph.D.; A. N. Wilson, Ph.D.; G. H. Wolter, M.S.  
 Lecturers: G. H. Alexander, Ph.D.; A. T. Berlad, Ph.D.; K. A. Ehrieke, M.S.; M. W. Halsey, M.S.; H. J. Hansen, Jr., M.S.; D. C. Kalbfell, Ph.D.; David Medved, Ph.D.; Norman Rostoker, D.Sc.; John Smyth, Ph.D.

#### COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN PHYSICS

##### UPPER DIVISION COURSES

- |   |                                 |
|---|---------------------------------|
| 104B. Vacuum Tube Circuit Design (3)        | 153. Servo-System Design (3)    |
| 106. Optics (3)                             | 154. Television Circuits (3)    |
| 112. Thermodynamics and Kinetic Theory (3)  | 155. Analogue Computers (3)     |
| 114. Acoustics (3)                          | 156. Digital Computers (3)      |
| 120. Advanced Laboratory (2-4)              | 160. Circuit Analysis (3)       |
| 124. Radio Measurements (2)                 | 167. Transistor Circuits (3)    |
| 125. Microwave Measurements (2)             | 170. Electromagnetic Theory (3) |
| 126. Solid State Devices Laboratory (2)     | 175. Advanced Mechanics (3)     |
| 148A-148B. Nuclear Physics Laboratory (3-3) | 180. Solid State Physics (3)    |
| 151. Nuclear Physics (3)                    | 190. Theoretical Physics (3)    |
|   | 196. Advanced Physics (2 or 3)  |

#### GRADUATE COURSES

##### 200. Seminar (2 or 3)

An intensive study of one phase of physics, such as: mechanics, heat and thermodynamics, acoustics, radiowave propagation, electronics, atomic nuclear and solid state physics. May be repeated with new subject matter for additional credit.

##### 205. Theoretical Mechanics (3)

An intensive study of 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. Prerequisite: Physics 175, or permission of the instructor.

##### 210A-210B. Mathematics of Physics (3-3)

Selected 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. Prerequisite: Admission into a master's degree program.

##### 240A-240B. Reactor Materials Technology (3-3)

A study of certain engineering, chemical, and nuclear properties of materials used in reactors, and of the influence of the reactor environment on these properties. Prerequisites: Physics 180 and 190; and Chemistry 161.

##### 245A-245B. Reactor Theory (3-3)

Theory of chain reactions and their application to the operation of various types of reactors. Kinetics, theoretical design, and control of reactors in relation to the fundamental nuclear processes. Prerequisite: Physics 190.

##### 246. Problems in Reactor Design Parameters (3)

A combined seminar and group project course in which the class will be assigned a specific, detailed reactor problem. Subgroups will work on specific problems within the main reactor design problem. Prerequisite: Concurrent registration in Physics 240B, 245B, and 248B.

##### 248A-248B. Reactor Laboratory (2-2)

Measurement of the static and dynamic characteristics of a reactor. Reactor operation, reactor radiations, neutron flux properties and temperature effects. Use of the reactor as an experimental tool. Prerequisites: Chemistry 161, Physics 148B; concurrent registration in Physics 245A-245B.

##### 251. Nuclear Theory (3)

Applications of quantum theory to nuclear physics. Theory of nuclear forces, nuclear reactions, interaction of radiation with matter, radioactivity, nuclear structure and high energy physics. Prerequisites: Physics 151 and 175 or permission of the instructor.

##### 260. Advanced Electronics (3)

Selected advanced topics in contemporary electronics. Prerequisites: Physics 104B and 160, or permission of the instructor.

##### 270. Electromagnetic Theory (3)

Boundary value problems; time varying electric and magnetic fields; propagation of radiation; antennas, wave guides. Prerequisite: Physics 170, or permission of the instructor.

##### 275. Quantum Mechanics (3)

The physical basis of quantum mechanics. Schrodinger's wave equation, and Heisenberg's matrix mechanics. Quantum theory of radiation, molecular, and nuclear systems. Approximation methods. Prerequisites: Physics 151 and 175 or permission of the instructor.

##### 280. Theory of the Solid State (3)

Prerequisites: Physics 180 and 275.  
 The energy band theory of solids, with applications to the electrical and optical properties of dielectrics, semiconductors and metals.

##### 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.

**296. Directed Field Experience (1-6)**

Meets the requirement of directed field experience for candidates for the master of science degree, but is not limited to candidates for the degree. Required in addition to the 30-unit requirement for the degree, when previous experience is lacking or not acceptable.

**298. Special Study (1-6)**

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

**299. Thesis (3)**

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

## POLITICAL SCIENCE

### GENERAL INFORMATION

The Department of Political Science offers graduate work leading to the master of arts degree with a major in political science, the master of arts degree in personnel supervision and training, and the master of science degree in public administration. For graduate work in connection with the master of arts degree for teaching service with a concentration in social science, refer to the section of this bulletin under social science. Research facilities provided by the Department of Political Science include the Public Affairs Research Institute, the Public Administration Laboratory, the International Relations Laboratory, and the Politics and Citizenship Laboratory. The San Diego metropolitan community affords significant internship opportunities for the graduate student in federal, state, and local government.

### MASTER OF ARTS DEGREE IN POLITICAL SCIENCE

#### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division. In addition, students seeking the master of arts degree with a major 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.

#### SPECIFIC DEPARTMENTAL REQUIREMENTS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include a minimum of 24 units in political science (excluding Political Science 296, Internship in Political Science) from courses listed below as acceptable on master's degree programs of which at least 12 units must be in 200-numbered courses including Political Science 200, The Scope and Method of Political Science, and Political Science 299, Thesis. A reading knowledge of a foreign language and a final oral examination on the general field of the thesis are also required.

#### ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy as described in Part Two of this bulletin under Master of Arts Degree.

### MASTER OF ARTS IN PERSONNEL SUPERVISION AND TRAINING

This degree is directed specifically toward graduate study in the field of personnel management, with emphasis on the training function. In addition to a core of study in political science, an integral part of this program is a block of course and seminar work devoted to education and training on government.

#### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division. The student must also have (1) an adequate grounding in social science courses taken on the undergraduate level or as a prerequisite for admission to regular graduate standing; and (2) an undergraduate grade point average of not less than 3.0 (B) in the major field and not less than 2.5 overall during the last two years of college.

### SPECIFIC DEPARTMENTAL REQUIREMENTS

In addition to meeting the requirements for regular graduate standing, the student must satisfy the general requirements for the master of arts degree, described in Part Two of this bulletin, section on Master of Arts Degree. The student must also complete a minimum of 30 units of upper division or graduate courses distributed as follows: (1) Political Science 200, The Scope and Method of Political Science, and Political Science 299, Thesis; (2) a minimum of 12 units of courses and seminars devoted to the training and supervisory functions in government, to be selected in consultation with the graduate adviser, including at least three units of Political Science 240A-240B, Seminar in Public Administration.

### ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, described in Part Two of this bulletin under Master of Arts Degree.

### MASTER OF SCIENCE DEGREE IN PUBLIC ADMINISTRATION

This degree permits the selection under advisement, from a wide variety of courses, of a program which may be oriented toward a generalist approach or toward an emphasis on personnel administration, finance administration, engineering management, public planning, correctional administration, or social 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 offered by other departments than political science. Graduate offerings in economics, sociology, psychology, business administration, and other areas may be utilized in the student's graduate program.

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division. The student must also satisfy the following requirements: (1) submit a departmental application form and a statement of not less than 1,000 words justifying his desire to follow a program of study leading to the degree of master of science in public administration to the department's Graduate Committee; (2) 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); (3) have maintained an undergraduate grade point average of not less than 3.0 (B) in the major field and not less than 2.5 overall during the last two years of college; and (4) complete the government portion of the Graduate Record Examination. The requirements listed in (3) and (4) may be met in part by a showing by the applicant that he has a background of responsible administrative experience.

### SPECIFIC DEPARTMENTAL REQUIREMENTS

In addition to meeting the requirements for regular graduate standing, the student must satisfy the general requirements for the master of science degree, described in Part Two of this bulletin, section on Master of Science Degree. The student must also complete: (1) Political Science 200, The Scope and Method of Political Science; Political Science 240A-240B, Seminar in Public Administration; and Political Science 299, Thesis. (2) a minimum of 12 units of upper division or graduate courses in political science or related fields selected under advisement; (3) a minimum of six units in one of the fields of concentration: general administration, personnel administration, finance administration, local government administration, social work administration, correctional administration, and public planning administration; and (4) six units of internship (directed field experience).

The internship requirement can be met either by (a) successful completion of Political Science 296, Internship in Public Administration, or by (b) a demonstration on the part of the student that he has had satisfactory qualifying experiences in the field, on the basis of which the department may recommend that the six units of internship be waived. If the student is required to enroll in Political Science 296, he will work in a governmental agency under supervision of the agency and the department jointly. He will perform duties of an administrative nature. Place-

ments will ordinarily 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.

### ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Science Degree.

### FACULTY

Department Chairman: D. B. Leiffer  
Graduate Advisers: Master of Arts (major): M. D. Generales, D. B. Leiffer;  
Master of Arts (personnel supervision and training): W. R. Bigger; Master of  
Science (public administration): W. R. Bigger, R. F. Wilcox  
Professors: W. R. Bigger, Ph.D.; M. D. Generales, Degree in Law and Political  
Science, University of Athens; D. B. Leiffer, Ph.D.; R. F. Wilcox, Ph.D.  
Associate Professors: H. L. Janssen, Ph.D.; N. V. Joy, Ph.D.  
Assistant Professors: Melvin Crain, Ph.D.; Richard Gripp, Ph.D.; J. D. Kitchen,  
Ph.D.; L. V. Padgett, Ph.D.

### COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN POLITICAL SCIENCE

#### UPPER DIVISION COURSES

- |  |   |
|--|---|
| 105. American Political Thought (3)                      | 153. Case Studies in Public Administration (3)  |
| 107A-107B. Constitutional Government (2-2)               | 155. Supervisory Staff and Employee Training (3)  |
| 111A-111B. Theory of the State (3-3)                     | E-157. Public Relations of Public Agencies (2 or 3) Extension. Special permission required. |
| 112. Modern Political Thought (3)                        | 159. Public Welfare Administration (3)  |
| 115. American Institutions (3)                           | 160. Principles of Planning (2 or 3)  |
| 120. Political Parties (3)                               | 161. Field Studies in Government (3)  |
| 121. Basic Factors in American Politics (3)              | 162. Finance Administration (2 or 3)  |
| 122. Propaganda and Public Opinion (3)                   | E-163. Governmental Budgeting (2 or 3), Extension. Special Permission required.             |
| 123-S. Contemporary American Politics (3)                | 165. Dynamics of Modern International Crises (3)  |
| 125. The Legislative Process (3)                         | 168-S. Institute on World Affairs (3)   |
| 136. Administrative Law (3)                              | 170A-170B. International Relations (3-3)  |
| 138. Introduction to Jurisprudence (3)                   | 171. Administration of American Foreign Affairs (3)   |
| 139A-139B. American Constitutional Development (3-3)     | 172. International Organization (3)   |
| 140A-140B. Principles of Public Administration (3-3)     | 173. Principles of International Law (3)  |
| 141. Government Report Writing (2)                       | 175. International Relations of the Latin American States (3)                               |
| 142. State Government (3)                                | 176. International Relations of the Asian States (3)  |
| 143. Municipal and County Government (3)                 | 180. Government of England (3)  |
| 144. Introduction to Public Personnel Administration (3) | 181. Government of the Soviet Union (3)   |
| 145. Human Relations in Management (3)                   | 182. Governments of Latin America (3)   |
| 146. Wage and Salary Administration (3)                  | 183. Governments of Asia (3)  |
| 148. Government of Metropolitan Areas (3)                | 185. Governments of Continental Europe (3)  |
| 151. California Law of Municipal Corporations (2)        | 199. Special Study (1-6)  |
| 152. Techniques of Administrative Analysis (3)           |   |

#### GRADUATE COURSES

200. 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)**

May be repeated with new content to a maximum of six units with consent of the graduate adviser.

220. **Seminar in Politics (3)**

May be repeated with new content to a maximum of six units with consent of the graduate adviser.

230. **Seminar in Public Law (3)**

May be repeated with new content to a maximum of six units with consent of the graduate adviser.

240. **Seminar in Public Administration (3)**

May be repeated with new content to a maximum of six units with consent of the graduate adviser.

260. **Planning and Public Policy (3)**

Prerequisite: Appropriate undergraduate courses in planning, political science, or related fields.

Relationship of the planning process to governmental policies and administration. Examination of social, political, and administrative problems involved in planning governmental programs and community facilities.

270. **Seminar in International Relations (3)**

May be repeated with new content to a maximum of six units with consent of the graduate adviser.

280. **Seminar in Comparative Government (3)**

May be repeated with new content to a maximum of six units with consent of the graduate adviser.

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.

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 permission of the instructor. Required in addition to the 30 units for candidates for the master of science degree in public administration who lack practical experience.

298. **Special Study (1-6)**

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.

## PSYCHOLOGY

### GENERAL INFORMATION

The Department of Psychology offers graduate work leading to the master of arts degree with a major in psychology, the master of arts degree for teaching service, and the master of science degree in psychology. The general secondary credential with a major in psychology is also available; however, the student is required to complete two minors. Graduate training is provided for students specializing in the fields of clinical, industrial and personnel, and theoretical-experimental psychology. Laboratory facilities for receiving training in both human and animal psychology are available, and students are required to take courses in experimental psychology and statistical methods. Practicum courses designed to fulfill the requirements for directed field experience are available in all three fields of graduate specialization. These practicum courses involve supervised training in such places as local military establishments, industrial plants, and hospitals.

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division. The student must also (1) have completed 24 semester units of upper division work in psychology, including Psychology 104A, Statistical Methods in Psychology; 105, Psychological Testing; 160 or 161, Experimental Psychology, and 178, Theories of Personality, or their equivalents, (2) have an overall grade point average of 3.0 (B) in his last 60 units of work, (3) have a percentile rank of 50 or higher on the Psychology Department Comprehensive Examination "total."

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER'S DEGREE PROGRAMS

In addition to meeting the requirements for regular graduate standing, the student must satisfy the general requirements for the master of arts or master of science degree as described in Part Two of this bulletin. Students are required to complete at least 12 units of 200-level courses in psychology. Students who plan to specialize in industrial or personnel psychology must complete satisfactorily, either as a part of the undergraduate or graduate work, Psychology 104B, Advanced Statistics. Students who plan to specialize in another phase of psychology must complete satisfactorily the following courses: Psychology 104B, Advanced Statistics; Psychology 175, Theories of Learning; Psychology 177, History of Psychology; and two of the following: Psychology 160, Experimental Psychology; Psychology 161, Experimental Psychology; Psychology 162, Experimental Psychology; Psychology 170, Principles of Animal Behavior. Psychology 290 and a thesis are required of all applicants for the master's degree. Applicants for the master of arts degree for teaching service must satisfy credential requirements as applicable. Applicants for the master of arts degree with a major in psychology must: (1) complete Psychology 222, Seminar in Theoretical Psychology, Psychology 223, Experimental Design; (2) demonstrate a reading knowledge of French, German, or Russian, or complete at least six units of approved mathematics; and (3) pass an oral examination on the thesis.

### SPECIFIC REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete three units of Psychology 201, Seminar, and six upper division or graduate units in subject fields commonly taught in junior and senior high schools.

### ADVANCEMENT TO CANDIDACY

In addition to the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Arts or Master of Science Degree, the student must make a satisfactory score on the graduate record area examination.

## FACULTY

Department Chairman: E. W. Geldreich

Graduate Adviser: R. C. Harrison

General Secondary Credential Advisers: I. N. McCollom; W. D. Kinnon

Professors: H. B. Carlson, Ph.D.; E. W. Geldreich, Ph.D.; O. J. Kaplan, Ph.D.; W. M. Kidwell, Ed.D.; I. N. McCollom, Ed.D.; W. C. Treat, Ph.D.; M. B. Turner, Ph.D.; Virginia W. Voeks, Ph.D.

Associate Professors: R. C. Harrison, Ph.D.; D. M. Rumbaugh, Ph.D.; J. B. Sidowski, Ph.D.

Assistant Professors: W. J. Crow, Ph.D.; L. O. Daniel, Ph.D.; W. A. Hunrichs, Ph.D.; W. D. Kinnon, Ph.D.; F. P. Leukel, Ph.D.; E. F. O'Day, Ph.D.; T. T. Psomas, Ph.D.; J. R. Smith, Ph.D.; W. R. Stevens, M.A.

## COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN PSYCHOLOGY

### UPPER DIVISION COURSES IN PSYCHOLOGY

- |  |   |
|--|---|
| 104B. Advanced Statistics (3)                  | 153. Advanced Abnormal Psychology (3)                         |
| 109. Mental Deficiency (3)                     | 160. Experimental Psychology: Learning and Cognition (3)      |
| 121. Personnel and Industrial Psychology (3)   | 161. Experimental Psychology: Sensation and Perception (3)    |
| 122. Public Opinion Measurement (3)            | 162. Experimental Psychology: Motor Processes and Fatigue (3) |
| 124. Engineering Psychology (3)                | 170. Principles of Animal Behavior (3)                        |
| 141. Neural Bases of Behavior (3)              | 175. Theories of Learning (3)                                 |
| 142. Physiological Psychology (3)              | 177. History of Psychology (3)                                |
| 150. Abnormal Psychology (3)                   | 178. Theories of Personality (3)                              |
| 151. Introduction to Clinical Appraisal (3)    |   |
| 152. Introduction to Methods of Counseling (3) |   |

### GRADUATE COURSES

201. **Seminar (3)**  
A review, integration, and supplementation of the student's knowledge of psychology. Prerequisites: 24 units in psychology, which may include educational psychology courses in the Education Department. Required of all transfer students planning to earn a master's degree in psychology.
204. **Individual Psychological Testing (3)**  
Principles of individual testing. Instruction and practice in the administration and scoring of the Stanford-Binet, Wechsler-Bellevue, and some similar tests. One lecture and six hours of laboratory per week. Prerequisites: Psychology 104A and 105.
205. **Advanced Mental Testing (3)**  
The theory of mental testing and a comprehensive survey of various verbal and nonverbal individual mental tests. Supervised administration, scoring and interpretation of some individual psychological tests. Tests other than the Wechsler-Bellevue and the Stanford-Binet are stressed. One two-hour lecture and one three-hour laboratory per week. Prerequisites: Psychology 104A, 105, 151, and 204.
211. **Advanced Clinical Psychology (3)**  
Seminar integrating psychological testing, counseling, and clinical research. Includes supervised laboratory experience in counseling and in integrating data involved in clinical cases. One two-hour seminar and one three-hour laboratory per week. Prerequisites: Psychology 151, 152, and 204.
220. **Seminar in Human Relations in Industry (3)**  
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. Prerequisites: Psychology 121 or Business Administration 145.
221. **Seminar in Problems in Social Psychology (3)**  
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. Prerequisites: Psychology 104A, 145, 160 or 161, and 175, or consent of the instructor.

### 222. Seminar in Theoretical Psychology (3)

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. Limited to students who have a qualifying score on the Psychology Department Comprehensive Examination. Prerequisites: Psychology 175 and 178.

### 223. Experimental Design (3)

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. Limited to students who have a qualifying score on the Psychology Department Comprehensive Examination. Prerequisites: Psychology 104B and 160 or 161 or 162.

### 224. Advanced Experimental (3)

Methods, techniques, and apparatus applicable to questions of various types. Special attention is given to sources of error, limitations on interpretation, and psychophysical methods. Students will design and carry out experiments in preparation for original independent investigations. Prerequisite: Psychology 223.

### 225. Principles of Test Construction (3)

Detailed consideration of adequate sampling techniques, item construction, item analysis, determination and enhancement of reliability and validity of tests. Prerequisites: Psychology 104B and 105.

### 233. Guidance Counseling Techniques (3)

Designed for school counselors. To stress the understandings and procedures necessary for effective interviewing. Prerequisite: Education 115, or Education 230, or Psychology 151. Not open to students with credit for Education 233.

### 234. Projective Psychology (3)

Introduction to the theory and principles underlying use of projective techniques by clinical psychologists; a review of the structure and dynamics of personality as interpreted by projective devices. Prerequisites: Psychology 104A, 105, 151, 178, and 204.

### 235. The Rorschach Method (3)

A seminar and practicum in basic administration and scoring of the Rorschach Test, with critical appraisal of the problems involved in estimations of reliability and validity of this technique. Prerequisites: Psychology 104A, 105, 151, 178, 204, and 234.

### 236. Interpretation of Projective Materials (3)

A seminar in the clinical interpretation of the Rorschach Test, the Thematic Apperception Test, and other projective devices, with critical emphasis on methods of research and validation. Not acceptable for credit toward the M.S. degree in psychology. Prerequisite: Psychology 235.

### 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.

### 296. Directed Field Experience (1-6)

Meets the requirement of directed field experience for candidates for the master of science degree, but is not limited to candidates for the degree. Required in addition to the 30-unit requirement for the degree, when previous experience is lacking or not acceptable. Prerequisites: Limited to graduate students in psychology, with appropriate qualifications in a field of professional skill, and approved by the practicum committee of the Psychology Department.

### 298. Special Study (1-6)

Individual study projects involving library or laboratory research in physiological, industrial, learning, clinical, and other areas of experimental psychology. May be repeated to a maximum of six units. Prerequisite: Permission of instructor.

### 299. Thesis (3)

Guidance in the 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. Prerequisites: An officially appointed thesis committee and advancement to candidacy.

## SOCIAL SCIENCE

### GENERAL INFORMATION

The Division of Social Sciences offers graduate work leading to the master of arts degree for teaching service with a concentration in social science with emphases in the fields of economics, geography, history, political science, and sociology. Teaching majors and minors for the general secondary credential are also offered. (The master of arts degree with majors in economics, history, political science, and sociology is described in the appropriate sections of this bulletin.)

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division. In addition, students are expected to have completed at least 15 units of upper division courses in the social science field which they plan to emphasize. For an emphasis in economics, the student must have completed at least 15 units of upper division courses in economics, including Economics 100A-100B, Intermediate Economic Theory, and Economics 140, Statistical Methods, or their equivalents, and six units of upper division courses in economics or related fields as approved by the graduate adviser. For an emphasis in sociology, the student must have completed Sociology 1 and 10, or their equivalents, and 15 units of upper division sociology courses including Sociology 100, Modern Social Theory, and Sociology 160, Elementary Social Statistics, or their equivalents.

### SPECIFIC DIVISIONAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, including the requirement of a California teaching credential, the student's graduate program must include a concentration in the social sciences defined as follows:

1. A minimum of 18 units from courses listed in this bulletin as acceptable on master's degree programs by the departments of economics, geography, history, political science, and sociology, including at least 10 units of 200-numbered courses in the social sciences.
2. An emphasis in one of the areas enumerated above as determined by the graduate adviser.
3. Education 290A, Procedures of Investigation and Report, course 290, Bibliography, and course 299, Thesis, are required courses in all master of arts degree programs in the social sciences. Political Science 200, The Scope and Method of Political Science, is required in the political science emphasis, where it may substitute for Education 290A and course 290, Bibliography.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete a minimum of four units of upper division or 200-numbered courses in social science areas, selected with approval of the graduate adviser.

### ADVANCEMENT TO CANDIDACY

For information on the general requirements for advancement to candidacy, refer to Part Two of this bulletin, under Master of Arts Degree-General Requirements.

### FACULTY

Division Chairman: D. S. Milne

Graduate Adviser: D. S. Milne

General Secondary Credential Adviser: D. S. Milne

Faculty members in the departments of economics, geography, history, 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 Economics, Geography, History, Political Science, and Sociology. In addition, the following courses may be accepted on master's degree programs in social science if approved by the graduate adviser:

Anthropology 102, 103, 151A, 151B, 152, 153, 156, 161, 162, 163, 167, and 172.

## SOCIOLOGY

### GENERAL INFORMATION

The Department of Sociology offers graduate work leading to the master of arts degree with a major in sociology. For graduate work in connection with the master of arts degree for teaching service with a concentration 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 REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division. In addition, students seeking the master of arts degree with a major in sociology must have completed 18 upper division units in sociology including Sociology 101, Modern Social Theory, Sociology 140, Social-Psychological Foundations of Society, Sociology 160, Elementary Social Statistics, and one course from each of the following fields: (1) Social Disorganization; (2) Social Institutions or Social Organization; and (3) Urban Sociology-Demography.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree, as described in Part Two of this bulletin, the student's graduate program must include a minimum of 24 units from courses in sociology listed below as acceptable on master's degree programs, of which at least 13 units must be in 200-numbered courses including Sociology 260, Seminar in Research Methods, and Sociology 299, Thesis. A reading knowledge of French or German, a final comprehensive examination, and an oral examination on the thesis are further requirements for the degree.

### ADVANCEMENT TO CANDIDACY

For information on general requirements for advancement to candidacy, refer to Part Two of this bulletin under Master of Arts Degree-General Requirements. Students seeking the master of arts degree with a major in sociology must also have completed Sociology 164, Methods of Social Research, either as a graduate or as an undergraduate.

### FACULTY

Department Chairman: B. C. Kirby

Graduate Adviser: B. C. Kirby

Professors: K. E. Barnhart, Ph.D.; O. E. Klapp, Ph.D.; D. S. Milne, Ph.D.; S. L. Rogers, Ph.D.

Associate Professors: P. H. Ezell, Ph.D.; B. C. Kirby, Ph.D.; Aubrey Wendling, Ph.D.

Assistant Professors: M. J. Daniels, Ph.D.; J. R. DeLora, M.A.; R. A. Kurtz, Ph.D.; Earle MacCannell, Ph.D.; Irving Tebor, Ph.D.; Frank Young, Ph.D.

## COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN SOCIOLOGY

### UPPER DIVISION COURSES

- |   |  |
|---|--|
| 100. History of Social Thought (3)                | 157. Urban Sociology (3)                 |
| 110. Social Disorganization (3)                   | 164. Methods of Social Research (3)      |
| 113. Criminology and Penology (3)                 | 180. Fields of Social Work (3)           |
| 114. Juvenile Delinquency (3)                     | 182. Methods of Social Case Work (3)     |
| 116. Contemporary Correctional Administration (3) | 183. Social Group Work (3)               |
| 120. Industrial Sociology (3)                     | 184. Community Welfare Organization (3)  |
| 125. Race Relations (3)                           | 185. Public Welfare Administration (3)   |
| 136. Sociology of the Family (3)                  | 186. Social Work and the Law (3)         |
| 138. Sociology of Religion (3)                    | 189. Field Assignment in Social Work (3) |
| 146. Collective Behavior (3)                      | 199. Special Study (1-6)                 |
| 148. Small Groups (3)                             |  |
| 150. Population Problems (3)                      |  |

### GRADUATE COURSES

200. **Seminar in Social Theory (3)**  
Prerequisites: Sociology 101 and 164, or consent of instructor.  
Advanced study of social theory, its modern formulations and historical development, with emphasis on individual research and report of findings.
210. **Seminar in Social Disorganization (3)**  
Prerequisites: Sociology 110 and 164, or consent of instructor.  
Advanced study of the processes which contribute to and maintain social and personal disorganization. The relationship of sociological factors, including urbanization, secularization and social change, to these processes, with emphasis on contemporary theory and research.
220. **Seminar in Social Organization (3)**  
Prerequisite: Sociology 164 or consent of instructor.  
Analysis of the principal organizational forms of society and groups, in terms of their basic patterns, interrelations, organizational change, and the relation of the individual to social structure. Study of bureaucracy, consensus, formal and informal structure and function.
230. **Seminar in Social Institutions (3)**  
Prerequisite: Sociology 164 or consent of instructor.  
Advanced study of institutional forms and processes, including the institutional bases of social mores. The effect of sociological factors, including cultural lag, on contemporary social institutions.
240. **Seminar in Social Interaction (3)**  
Prerequisites: Sociology 140 and 164, or consent of instructor.  
Advanced study of social-psychological interaction, including sociological factors in personality development and analysis of morale, motivation, leadership and other elements of group behavior.
250. **Seminar in Human Ecology and Demography (3)**  
Prerequisites: Sociology 150 and 164, or consent of instructor.  
Analysis of the sociological variables which influence distribution and composition of populations and social institutions, with special emphasis on urban social organization.
260. **Seminar in Research Methods (3)**  
Prerequisites: Sociology 101 and 164, or consent of instructor.  
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.
280. **Principles of Social Case Work (3)**  
Prerequisite: Sociology 180, or Psychology 152, or Education 233, or Psychology 233.  
A study of the principles and practices of social case work; problems of case recording and analysis. Directed field work and case studies. (Formerly Sociology 230.)

**281. Field Work in Social Case Work (3)**

Prerequisites: Sociology 180 and 280.

Supervised practice in local social work agencies. (Formerly Sociology 231.)

**285A-285B. Case Work Supervision (3-3)**

Prerequisite: Sociology 280 or consent of instructor.

Discussion and analysis of cases and problem situations encountered by social case work supervisors. Review of basic case work techniques and principles of personnel supervision as applied to social case work. (Formerly Sociology 235A-235B.)

**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.

**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.

Guidance in the preparation of a project of thesis for the master's degree.

## SPEECH ARTS

### GENERAL INFORMATION

The Department of Speech Arts offers graduate work leading to the master of arts degree with a major in speech arts and to the master of arts degree for teaching service with a concentration in speech arts. The general secondary credential with teaching majors and minors in speech arts is also available. Advanced work in the areas of public speaking, interpretation, speech pathology, theater, radio and television broadcasting is available. Greatly improved facilities are now in use in the new speech building and theater. Facilities in these buildings include a two-studio plant fully equipped for radio and television production. Graduate students will serve as interns in a program of field training with commercial stations in the San Diego area.

### ADMISSION TO REGULAR GRADUATE STANDING

All students must satisfy the general requirements for admission to regular graduate standing, as described in Part One of this bulletin under Admission to the Graduate Division.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR MASTER OF ARTS PROGRAMS

In addition to meeting the requirements for regular graduate standing and the general requirements for the master of arts degree as described in Part Two of this bulletin, the student's graduate program must include either a major or a concentration defined as follows:

**Major:** A minimum of 24 units from courses listed below as acceptable on master's degree programs in speech arts of which at least 12 units must be in 200-numbered courses. Speech Arts 292, Methods in Research and Bibliography, and Speech Arts 299, Thesis, are required courses.

**Concentration:** A minimum of 18 units from courses listed below as acceptable on master's degree programs in speech arts of which at least 10 units must be in 200-numbered courses. Speech Arts 292, Methods in Research and Bibliography, or Education 290A, Procedures of Investigation and Report, and Speech Arts 299, Thesis, are required courses. (The student must also satisfy the requirements for a California school service credential.)

In Speech Arts 299, the student is required to write a thesis or to complete a project involving creative work in such fields as theater design, stage direction, playwriting, broadcasting, interpretation, or an experimental project in speech pathology, with an appropriate written report thereon.

### SPECIFIC DEPARTMENTAL REQUIREMENTS FOR THE GENERAL SECONDARY CREDENTIAL

Applicants for the general secondary credential must complete at least four units of 200-numbered courses in speech arts.

### ADVANCEMENT TO CANDIDACY

All students must meet the general requirements for advancement to candidacy, which are described in Part Two of this bulletin under Master of Arts Degree. In addition, students seeking the master of arts degree with a major in speech arts are required to pass an oral and written qualifying examination.

### FACULTY

Department Chairman: Sue W. Earnest  
Graduate Adviser: Hunton D. Sellman  
General Secondary Credential Adviser: William J. Adams  
Professors: J. W. Ackley, Ph.D.; Sue W. Earnest, Ph.D.; H. D. Selman, M.S.; Paul Pfaff, Ph.D.  
Associate Professors: W. J. Adams, Ph.D.; R. L. Benjamin, Ph.D.; K. K. Jones, Jr., M.A.; E. K. Povenmire, M.F.A.; D. W. Powell, M.F.A.

Assistant Professors: R. E. Lee, M.A.; Jack Mills, Ph.D.; Frank Norwood, M.A.; Phyllis N. Rogers, M.A.  
 Instructors: Nancy Jo Reed, A.B.; Edmund L. Thile, M.A.

### COURSES ACCEPTABLE ON MASTER'S DEGREE PROGRAMS IN SPEECH ARTS

#### UPPER DIVISION COURSES

- |  |  |
|--|--|
| 108. Advanced Interpretation (3)                       | 176. Stuttering and Neurological Disorders (3)                   |
| 118A-118B. Play Analysis-Playwriting (3-3)             | 177. Aural Rehabilitation (3)                                    |
| 130. Semantics (3)                                     | 178. The Teaching of Lip Reading (2)                             |
| 140A-140B. Scene Design for Stage and Television (3-3) | 179. Clinical Methods in Speech Correction (3)                   |
| 142. Theater Workshop (3 or 6)                         | 180. Field Work in Clinical Practice in Speech Correction (2)    |
| 145. Stage and Television Lighting (3)                 | 181. Radio and Television Station Management and Advertising (3) |
| 150. Phonetics (3)                                     | 182A-182B. Radio Workshop (2-2)                                  |
| 152. History and Design of Costume (3)                 | 183A-183B. Television Workshop (2-2)                             |
| 154A-154B. History of the Theater (3-3)                | 184. Writing for Radio and Television (3)                        |
| 155. Advanced Acting (3)                               | 185. Radio Production Directing (3)                              |
| 156. Advanced Dramatic Production (3)                  | 186. Television Production Directing (3)                         |
| 159. Stage Direction (3)                               | 187. Radio and Television News (3)                               |
| 160. Stage Direction Laboratory (1)                    | 188. Field Training in Radio and Television (2-4)                |
| 162. Advanced Argumentation (3)                        | 189. Motion Picture Techniques for Television (3)                |
| 164. Verse Choir Directing (2)                         | 190. Rhetorical Theory (3)                                       |
| 170. Speech Development (3)                            | 191. Organized Discussion (3)                                    |
| 172. Mechanics of Speech Production (3)                | 192A-192B. Advanced Public Speaking (3-3)                        |
| 173. Functional Problems of Speech and Hearing (3)     | 199. Special Study (1-6)   |
| 174. Principles and Methods of Speech Correction (3)   |  |

#### GRADUATE COURSES

243. **Seminar in Staging Practices for Theater and Television** (3)  
 An investigation of the recent developments of modern staging facilities. The application of technological advances and electromechanical devices to the scenic arts for theater and television.
244. **Seminar in Stage Direction** (3)  
 Prerequisite: Speech Arts 159.  
 A discussion of the aesthetic principles and the practices of stage direction with emphasis on styles and historical periods.
245. **Seminar in Lighting for Stage and Television** (3)  
 Prerequisite: Speech Arts 145.  
 Discussion of principles concerned with the aesthetic and the technical problems of lighting in stage and television.
246. **Seminar in Design for Stage and Television** (3)  
 Prerequisites: For costume design, Speech Arts 152; for scenery design, Speech Arts 140A, 140B, and 156.  
 The principles of design in the theater with an emphasis on the historical development of theatrical costume or scenic environment. The investigation of recent tendencies in styles and their evolution. The A and B section may each be taken once for credit.  
 A. Costume Design  
 B. Scenery Design

247. **Seminar in History of the Theater and Drama** (3)  
 Prerequisites: Speech Arts 154A and 154B.  
 Detailed examination of the important periods, personalities, and theater structures in connection with this general field.
271. **Seminar: Functional Problems of Speech** (3)  
 Prerequisites: Speech Arts 174 and 176.  
 Theoretical consideration of etiologies and symptomatologies of speech disorders; principles of nonmedical therapy; survey of theory and experiments relating to functional speech disorders.
272. **Seminar: Organic Speech Disorders** (3)  
 Prerequisites: Speech Arts 174 and 176.  
 Survey of theories and experimental studies relating to organic speech disorders and their management.
280. **Field Work in Clinical Practice in Speech Correction** (2)  
 Prerequisites: Speech Arts 174 and 176, or consent of instructor.  
 Supervised work with representative advanced speech cases such as stuttering, aphasia, laryngectomies, etc. May be repeated for a maximum of four units, only two of which may be used for graduate credit toward an advanced degree.
281. **Seminar in Broadcasting** (3)  
 Reports and discussion involving research in some aspect or problem in radio and television broadcasting. This seminar analyzes procedure and trends in educational and commercial broadcasting. Two of the following seminar topics may be taken for a total of six units:  
 A. Management (Prerequisites: Speech Arts 181, Psychology 122, Business Administration 153, Journalism 102 and 180)  
 B. Programing (Prerequisites: Speech Arts 182, 183, 185, 186, 189)  
 C. Research (Prerequisites: Speech Arts 181, Political Science 122, and Psychology 122)  
 D. Writing (Prerequisites: Speech Arts 118A, 118B, 184, and English 195)
291. **Seminar in Public Address** (3)  
 Prerequisites: Speech Arts 190 and 192A or 192.  
 Advanced problems in rhetorical theory and analysis.
292. **Methods in Research and Bibliography** (3)  
 The use of basic reference books, journals, pertinent bibliographies, and other methods of research in the various areas of speech and theater.
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 or Project** (3)  
 Prerequisites: An officially appointed thesis committee and advancement to candidacy. Guidance in the preparation of a project or thesis for the master's degree.

## DEPARTMENTS OFFERING SPECIAL GRADUATE COURSES

### GEOLOGY

#### 200. Seminar (3)

Prerequisite: Bachelor's degree in physical science and Geology 198 or equivalent.  
An intensive study of some phases of geology such as geophysics, ground water hydrology, geochemistry, seismology, volcanology, or geomorphology. May be repeated with advanced or new subject material for additional credit.