

# College of Arts and Sciences

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The College of Arts and Sciences not only offers a wide variety of programs in teaching, research and extension, but also supports and reinforces all the other programs of the University.

Apart from strong programs in the natural and social sciences and in the liberal and fine arts, the College provides a number of more specialized and interdisciplinary strengths, and a variety of professional and preprofessional training. The College's 22 departments and two schools offer 46 degree programs at the bachelor's level, and in conjunction with the Graduate College, 23 master's and 14 doctoral degrees.

The Department of Economics in the College of Business Administration offers B.A. and B.S. degrees through the College of Arts and Sciences. The Department of Biochemistry and Molecular Biology in the College of Agricultural Sciences and Natural Resources also offers the B.S. through the College of Arts and Sciences.

The College of Arts and Sciences provides academic preparation for a wide variety of professions including: law, medicine, social work, nursing, optometry, veterinary medicine, graphic arts, teaching, writing, foreign service, urban and regional planning, journalism, public service, radio/TV, advertising, public relations, medical technology, military science, public affairs, corrections, child services, interpersonal communications, and fine and performing arts.

## Accreditation

Refer to appropriate pages under departmental listings for information on accreditation of specific programs.

## High School Preparation

The College of Arts and Sciences *strongly recommends* that high school students have: four years of English; at least three years of mathematics; three years of laboratory science; three years of social studies including American history and world history; at least two years of foreign language; and one year of arts such as music, theater, or studio art, and some familiarity with computers.

## Scholarships

A number of undergraduate scholarships are available through the College and through the departments and schools within the College. Interested students should inquire in the Office of Student Academic Services for a list of available scholarships. Arts and Sciences students are also encouraged to apply for the variety of scholarships available through the University, which are listed in the "Financial Aid" section of the *Catalog*.

## Academic Advising

**The Office of Student Academic Services.** The academic advising process in Arts and Sciences is coordinated by the Office of Student Academic Services. The counseling staff in Student Academic Services advise freshman, undecided and pre-health profession students. Departmental advisers provide advising for students who have declared their majors.

The Student Academic Services staff also represent the College in the

University's on-campus recruiting activities and represent the dean in such matters as petitions for extension and correspondence, change of major or college, and student withdrawals. Services also include graduation certification, information about college programs and requirements, and referral of A&S students to campus support services.

**The "Undecided" Student.** The general education program in the College of Arts and Sciences, while providing the breadth necessary for a quality undergraduate education, also makes it possible for freshmen who enroll without having decided on a major to make satisfactory progress toward most degrees for up to four semesters. Students who initially enroll as undecided students may explore possible major fields of study with an academic counselor in the Office of Student Academic Services while completing required basic courses.

**Responsibility and Assistance.** The responsibility for satisfying all requirements for a degree, and for ensuring that a degree plan has been submitted, rests with the student. Advisers assist students in curriculum planning, and students are encouraged to consult fully with their advisers and not restrict their visits to the enrollment periods when only brief meetings may be possible.

## Academic Programs

**Undergraduate Programs.** Requirements for all degree programs and options are detailed in the book *Undergraduate Programs and Requirements*, available in all Oklahoma colleges and high schools. Separate sheets, stating the requirements for any particular degree, may be obtained on request from the department or college in which the **degree** is offered.

*Bachelor of Arts (B.A.):* art, economics, English, French, geography, German, history, journalism and broadcasting, mathematics, music, philosophy, political science, psychology, Russian language and literature, sociology, Spanish, speech (communication consultancy), and theater.

*Bachelor of Science (B.S.):* aerospace studies, biochemistry, biological sciences, botany, cell and molecular biology, chemistry, computer science, economics, geography, geology, journalism and broadcasting, mathematics, medical



technology, microbiology, military science, physics, physiology, political science, premedical science, psychology, sociology, speech (communication consultancy), speech pathology, statistics, wildlife and fisheries ecology and zoology.

*Bachelor of Fine Arts (B.F.A.):* art (graphic design and studio).

*Bachelor of Music (B.M.):* music (elective studies in business; performance); music education (instrumental/vocal certification).

*Second Bachelor's Degree.* To secure a second bachelor's degree, a student must complete a *minimum* of 30 semester credit hours in addition to those required for the first degree. The number actually needed depends on what a student must do to satisfy all the requirements for the second degree.

A student seeking a second degree in the College of Arts and Sciences at OSU should ask his or her second adviser to submit a degree plan for the second degree, clearly headed "second degree," and showing how *all* the requirements of the second degree are to be satisfied. The plan should also state the major, date of award and total credit hours of the first degree, and indicate those courses which represent the minimum of 30 additional hours. The second degree plan should be sent to the College of Arts and Sciences Office of Student Academic Services within two weeks after the student's last enrollment.

Students wishing to complete degrees in two different colleges at OSU should consult with each office of student academic services. Concurrent enrollment in two colleges is possible, but a student must be enrolled in a college for at least two semesters before becoming eligible for a degree from that college.

*Second Majors and Minors.* If a student majoring in one field also completes the specified requirements for a "major" or a "minor" in other fields, the additional majors or minors may be noted on the student's transcript. Such specified requirements may be obtained from the department in which the second major or minor is sought, or from the Office of Student Academic Services. The student should, at the end of his or her senior year, ask the adviser in the second major or minor to submit the request to the department head and then to the Office of Student Academic Services in the College of Arts and Sciences.

**Graduate Programs.** Master's degrees are offered in most undergraduate subjects, with doctoral degrees available in some. (For details, see the departmental entries below or consult the "Graduate College" section in the *Catalog*.)

## Special Academic Programs

**Honors Program.** The Arts and Sciences Honors Program is the oldest and largest program of its kind at Oklahoma State University. It provides outstanding students with the opportunity to study, conduct research, and interact with faculty and other honors students in a variety of settings designed to assist talented students who seek to make the most of their educational opportunities. Honors sections of many general education courses allow participating students the benefits of small classes taught by experienced members of the faculty, thus combining the extensive resources of a major comprehensive university with personal faculty attention to each student. Special honors seminars provide coverage of topical issues each semester in formats that encourage the exchange of ideas through discussion and writing. Honors seniors complete the requirements of the Honors Program by undertaking a senior honors thesis (or similar creative activity), and honors seniors also may earn honors credit by enrollment in graduate seminars.

Three Honors Program awards are available to A&S students—the General Honors award, the Departmental Honors award in the student's major field, and the bachelor's degree with honors (which is earned by completing both General and Departmental Honors Program requirements with a minimum of 39 honors hours). These awards are reflected on the student's transcript, and a special honors diploma is awarded to students completing the requirements for the bachelor's degree with honors.

Priority enrollment is provided for students who are active in the A&S Honors Program. This allows honors students to select honors courses and other courses taught by outstanding faculty at the earliest possible date each semester and facilitates the development of class schedules tailored to the special needs of honors students. Eligibility for admission to the A&S Honors Program as a first-semester freshman is based on (1) an ACT composite score of 27-29 with a high school grade-point average of 3.75 or higher, or (2) an ACT composite score of 30 or higher with a high school GPA of 3.50 or higher. Later entry is permitted on the basis of cumulative grade-point average. Transfer students are eligible on the basis of cumulative grade-point average.

**Bachelor of University Studies (B.U.S.).** The B.U.S. in the College of Arts and Sciences allows outstanding students with unique educational objectives that cannot be fulfilled by any of the regular degree programs to design an individual

plan of study fitted to the student's particular needs. B.U.S. plans must be approved by a faculty committee, the Office of the Dean of the College of Arts and Sciences, and the Office of the Provost and Vice-President for Academic Affairs. At least 45 semester hours must be completed after the plan has been approved.

**Area Studies Certificates.** *International Studies.* Students at OSU are encouraged to add an international element to their education by earning an Area Studies certificate. Certificates are offered in Asian, African, Latin American, and Russian and Eastern European Studies.

The Area Studies certificate is granted upon successful completion of all requirements for a bachelor's degree in the student's major and of the following certificate requirements: (1) five credit hours of second-year level instruction in a language of the area chosen; and (2) six upper-division courses (18 credit hours) pertinent to the area chosen.

*Ancient and Medieval, Native American, and Women's Studies.* Certificates in Ancient and Medieval Studies, Native American Studies and Women's Studies are also available. These programs require approximately the same number of credit hours required for a minor in a specific department.

Further information on these certificate programs may be obtained from the Office of the Arts and Sciences Student Academic Services.

**High School Teaching Preparation.** Students earning degrees in the College of Arts and Sciences may, by completing certain courses, receive state licensure for teaching in the secondary schools. Full details may be obtained from departmental advisers or from the Office of Teacher Education in the College of Education.

Students who wish to qualify for teaching licensure should consult as early as possible with the adviser in their fields of interest, and should apply for admission to teacher education as soon as possible, preferably before the end of their sophomore year.

It is possible to qualify for teaching licensure and the bachelor's degree within the 127 semester credit hours required for graduation. When it is not possible, students may meet the requirements for the degree and then complete the licensure requirements by taking additional courses.

Full teaching certification is awarded by the State Department of Education when the licensed candidate has successfully completed a period of teaching in a school system.

**Preprofessional Programs in the Health Professions.** *Premedicine, Pre-*

*osteopathic Medicine, Pre-dentistry, and Pre-veterinary Medicine.*

The preprofessional curricula for medical doctors, osteopaths, dentists, podiatrists, optometrists and veterinarians have the same basic core because they must prepare students for professional schools whose admission requirements are almost identical. These include a strong foundation in math, chemistry, physics, and biology, the disciplines on which major advances in the health field depend. Included also are courses to develop written and spoken communication skills, which are highly important for a good relationship with patients, the public and other professionals.

Beyond this required core, preprofessional students may choose courses and a major as freely as any other students in the College of Arts and Sciences. Most students concentrate on some aspect of biology or chemistry, but other subject areas are not only acceptable but welcomed. Medical schools encourage study in the social sciences and humanities that contributes to the understanding of human beings in their entirety—their history and environment, their attitudes and values, their emotions, motivations, interpersonal relationships and cultural heritage. All of these may affect sickness and health.

Although most students entering a professional school in one of the above fields have a bachelor's degree, it is possible to apply for admission after three years of college work (two years for a few dental and veterinary schools). OSU permits preprofessional (health-related) students to choose between two alternative bachelor's degree programs: (1) in a specific discipline that requires a minimum of 127 semester credit hours at OSU, or (2) a premedical science degree program which allows a "3 plus 1" approach, requiring at least 97 semester credit hours at OSU and up to 30 hours to be transferred from a medical, osteopathic, dental or veterinary school.

Some professional schools do not state a firm minimum grade-point average for admission, but a student should maintain better than a 3.00 grade-point average to be competitive. The specific admission requirements of medical, dental and veterinary schools are compiled in catalogs available in the offices of each preprofessional adviser and in the Office of Student Academic Services. The OSU premedical and pre-veterinary course requirements are listed in the "College of Veterinary Medicine" and "College of Osteopathic Medicine" sections of the *Catalog*.

All applicants for medical schools must take the Medical College Admissions Test (MCAT), dental applicants must take

the Dental Admission Test (DAT), and optometry applicants must take the Optometry Admissions Test (OAT) prior to admission. The OSU College of Veterinary Medicine requires the General Test and the Advanced Biology Test of the Graduate Record Examination (GRE) taken within the previous four years.

**Allied Health Professions.** The allied health professions for which one can prepare at Oklahoma State University include athletic training, dental hygiene, nursing, occupational therapy, pharmacy, physical therapy, physician's associate, and radiologic technology. Each of these programs requires that the final phase of the education and degree program (usually two to three years) be completed elsewhere in a professional program. The College of Arts and Sciences offers the general education and basic science courses which one must complete before he or she can be accepted into a professional program. Students whose goal is admission to a professional program in the allied health professions should consult with the senior academic counselor-coordinator of health professions advising for information regarding the specific requirements of particular programs and schools.

**Medical Technology:** See "Department of Microbiology and Molecular Genetics."

**Pre-law Preparation.** Law schools have no single preference for a specific undergraduate major. Admission to law school is primarily based upon a strong record achieved in a rigorous undergraduate program and a competitive score on the Law School Admission Test (LSAT). Other admission considerations include course of study and difficulty of curriculum, college activities, and applicant's motivation and personality as revealed in a letter of application.

Law school admissions officers most frequently recommend that students include in their undergraduate programs courses in economics, literature and languages, psychology, history and government, mathematics, logic, philosophy, accounting and speech. Courses in these areas are especially helpful as one seeks to develop the verbal and analytical abilities that are particularly critical for success in law school.

Personal assistance in selecting an academic major, planning a solid pre-law curriculum, preparing and registering for the Law School Admissions Test, and applying to law school, is available through the pre-law adviser in the Office of Student Academic Services.

## Graduation Requirements

**General Education Requirements.** The General Education Requirements for the

degrees offered by the College are shown for each program in *Undergraduate Programs and Requirements*. At least 40 credit hours of General Education are required for all degrees.

All degrees include a common core of 12 credit hours. *Three credit hours of American history and three hours of American government* are required. These must be satisfied by HIST 1103, 1483 or 1493, and POLSC 1113. *Six credit hours of English composition* is a University requirement, and this must be satisfied by ENGL 1113 or 1313 and 1213 or 1413. Students who obtain a grade of "A" or "B" in ENGL 1113 may substitute ENGL 3323 for ENGL 1213 with permission of their departments.

The remaining 28 credit hours must be distributed as follows: six credit hours of social sciences, six hours of humanities, eight hours of natural sciences, six hours of analytical and quantitative thought, and two hours of General Education elective.

*College Requirements.* In addition to the 40 hours of general education, the college requires one credit hour of orientation, (A&S 1111), for all degrees. For the B.S., nine additional hours of natural or mathematical sciences are required, as well as three additional hours from the humanities or arts. For the B.A., nine additional hours of humanities or arts are required, as well as three additional hours of natural or mathematical sciences and a course focused on non-Western culture. College requirements define the B.A. or B.S. degree in the College of Arts and Sciences.

*Foreign Language Proficiency Requirement.* The foreign language requirement for the B.A. and B.F.A. in Arts and Sciences may be satisfied by 10 hours of college credit in the same language, or equivalent proficiency demonstrated by passing an advanced standing exam or completing a second-year or higher college-level course in the language. FRNCH and GRMN 3013, 3023, FRNCH and SPAN 4113, RUSS 3123, 4113, and 4223 do not satisfy this requirement.

The foreign language requirement for the B.S. and B.M. degrees may be met by presenting a high school transcript that demonstrates successful completion of two years of study in a single foreign language. It may also be satisfied by any of the three options listed above for the B.A.

The foreign language requirement for the Bachelor of University Studies degree will be determined based on the student's objective, but will be the requirement for either the B.A. or B.S.

*Non-Western Requirement (B.A. and B.F.A. only).* One three-hour course in Non-Western studies from: A&S 3603

(African or Asian studies); ART 4633, 4643, 4653, 4663, 4673; ECON 4643; ENGL 3173; FLL 3500, 3503; GEOG 3753, 3763; HIST 1713, 3013, 3203, 3403, 3413, 3423, 3433, 3980, 4613; JAPAN 2115, 2123, 2223; MUSIC 3573; PHILO 3943; POLSC 3213, 3223, 3253, 3313; REL 3403, 3413, 3533, 3613, 4113, 4400.

**International Dimension Requirement (all degrees).** One course which fosters understanding of, or the ability to communicate with, peoples and cultures of other countries. Courses satisfying this requirement are designated "I" in the *Catalog* and a list is available from any adviser or from the Office of the Dean of Arts and Sciences.

**Scientific Investigation Requirement (all degrees).** One course including an investigative laboratory that provides experience with scientific method. Courses satisfying this requirement are designated "L" in the *Catalog* and a list is available from any adviser or from the Office of the Dean of Arts and Sciences.

The Non-Western, International Dimension, and Scientific Investigation requirements may be satisfied by courses used also to satisfy any other part of a student's degree program (i.e., in General Education, College, Major, or Electives requirements). No additional hours are required.

**Additional College Requirements.** For all degrees, six hours of general education designated courses (excluding courses in the major prefix) are to be taken at the 3000 level or above.

**Major Requirements.** At least 40 semester credit hours as specified by the department, including courses in the major and in supporting fields, must be completed. These 40 hours constitute the student's Major Requirements.

**Upper-division Credit.** A student must successfully complete at least 50 semester hours of upper-division credit, i.e. credit in courses at the 3000 or 4000 level.

**Hours in One Prefix.** If a student seeking a B.A. or B.S. degree takes more than 48 semester credit hours in one subject, including both lower-division and upper-division credit, the hours in excess of 48 will be added to the minimum total of 127 hours required by the College for a bachelor's degree.

This "48 hour maximum" applies to all courses taken in a subject, whether they are required or elective, with the exception of required courses in English composition and American history and government.

**Total Semester Credit Hours and Grade-point Average.** The minimum number of semester credit hours for

graduation is 127. The minimum grade-point average is 2.00 and must be earned in all major courses, in Major Requirements, and in all courses applied toward the degree. A minimum cumulative grade-point average of 2.00, as calculated for graduation purposes, is also required. (See "University Academic Regulations" in the *Catalog*.)

Particular degree programs may specify higher grade-point requirements or exceed the 127 hours total. Details are given in *Undergraduate Programs and Requirements*.

**Native Speaker Policy.** It is the policy of the College of Arts and Sciences that native speakers of any foreign language (those whose language of instruction in high school was the language in question) may not normally be permitted to enroll in or establish credit in courses in that language at the 1000 or 2000 level. There are no restrictions on higher level courses. Exceptions necessitated by degree requirements may be determined by interview with the head of the Department of Foreign Languages and Literatures and the appropriate language section chairman.

**Endorsement of Student's Plan (Graduation Check).** Immediately after their last enrollment, and before their last semester, students should check with their advisers to ascertain that a degree plan has been sent to the Arts and Sciences Office of Student Academic Services.

**Changes in Degree Plan.** Once a degree plan has been submitted, a student will not graduate until all requirements on it have been fulfilled. Any deviation in the plan must be recommended by the adviser on a "Change in Plan of Study" card, and sent to the Arts and Sciences Office of Student Academic Services for approval.

#### **Checklist of Graduation Requirements.**

- Total hours.** Minimum 127 (see degree sheet). Hours of "F" or "I," or in repeated courses (unless officially approved in course descriptions in the *Catalog*), do not count. ENGL 0123, MATH 0123, and all athletic participation and leisure activity courses are not applicable to a degree. Students must ascertain that grade changes for the removal of "I's" have been sent to the Office of the Registrar by the instructor who gave the "I."
- Grade-point average.** See individual degree sheets for all grade-point minima: overall, in major prefix, and in major requirements.
- Validity of credits.**
  - No more than two courses in any one subject or (8 hours in biological science) may be used to satisfy

General Education and College requirements in the same breadth area.

- A course used in the Major Requirements may not be used to satisfy any other degree requirement, except the international dimension, scientific investigation, upper-division general education, and non-Western requirements.
  - Pass-No Pass Grading System. Courses taken on this campus under the Pass-No Pass Grading System (see "University Academic Regulations") may be used only as elective hours. They cannot satisfy any other requirement (General Education, Departmental, Major Requirement, certification).
- All degree requirements listed above and specified in "University Academic Regulations" and *Undergraduate Programs and Requirements* must be satisfied.
  - Exemption.** A student who believes that he or she has a valid reason for exemption from a College requirement should file with the Office of Student Academic Services a written request that has been approved by his or her adviser. Although general and departmental requirements apply to transfer students, all or most of the student's previous work may be acceptable as substitutions. Students should consult with their advisers.

## **Departmental Clubs and Honor Societies**

Advertising Club  
 Alpha Epsilon Delta (premedical honor society)  
 Alpha Epsilon Rho (broadcasting)  
 Alpha Kappa Delta (sociology)  
 American Association of Petroleum Geologists  
 American Chemical Society Student Affiliate (includes biochemistry)  
 Angel Flight  
 Arnold Air Society  
 Army Blades  
 Arts & Sciences Student Council  
 Association for Computing Machinery  
 Dobro Slovo (Slavic languages)  
 Economics Club  
 English Club  
 French Club  
 Friends of the Forms (philosophy)  
 Gamma Theta Upsilon (geography)  
 Geography Club  
 Geological Society

German Club  
 Japanese Club  
 Kappa Kappa Psi (band honor society)  
 Kappa Tau Alpha (mass communications)  
 Math Club  
 Mathematical Association of America  
 Music Business Students Association  
 Music Educators National Conference  
 Mu Sigma Rho (statistics honor society)  
 Omicron Delta Epsilon (economics)  
 OSU Artisans (art club)  
 OSU National Student Speech-Language-Hearing Association  
 Pershing Rifles (military science)  
 Phi Alpha Delta (pre-law)  
 Phi Alpha Theta (history honor society)  
 Phi Lambda Upsilon (chemistry honor society)  
 Phi Mu Alpha (music)  
 Phi Mu Tau (medical technology)  
 Pi Mu Epsilon (mathematics honor society)  
 Pi Sigma Alpha (political science honor society)  
 Political Science Club  
 Psi Chi (psychology honor society)  
 Psychology Club  
 Public Relations Student Society of America  
 Russian Club  
 Scabbard & Blade (military science)  
 Sigma Alpha Iota (music)  
 Sigma Delta Chi Society of Professional Journalists (journalism)  
 Sigma Delta Pi (Spanish honor society)  
 Sigma Pi Sigma /Society of Physics Students  
 Sigma Tau Delta (English honor society)  
 Sociology Club  
 Spanish Club  
 Speech Communication Organization  
 Statistics Club  
 Tau Beta Sigma (band honor society)  
 Wildlife Society, Student Chapter  
 Women in Communications

## Art

### Associate Professor and Head Nancy B. Wilkinson, Ph.D.

The Department of Art provides courses for students interested in: (1) a strong general education background, (2) major concentrations in studio art,

graphic design and art history, (3) minors in all three areas.

Two degrees are offered in art: Bachelor of Art (B.A.) with options in art history and studio art, that can be combined with teacher education; and the Bachelor of Fine Arts (B.F.A.), a professional degree with options in studio art or graphic design. Fields of concentration are available in drawing, oil and watercolor painting, printmaking, graphic design, ceramics, jewelry/metalsmithing, sculpture and art history.

Art majors must attain a grade-point average of 2.50 in art courses in order to qualify for licensure and graduation. Because of a large endowment, the department is able to offer substantial scholarships at all levels, freshman through senior.

The Department of Art maintains an exhibition gallery, the Gardiner Art Gallery in the Bartlett Center for the Studio Arts, with approximately 200 linear feet of exhibition space and 2600 square feet of floor space. Works by artists of national and international reputation, faculty and student works and cultural artifacts are shown.

## Biochemistry and Molecular Biology

Professor and Head James B. Blair, Ph.D.

Biochemistry, the central scientific discipline linking the chemical, physical and biological sciences, exerts a profound influence on the progress of medicine and agriculture. By applying concepts and methods of chemistry and physics to the fundamental problems of biology, biochemists have made great progress in their effort to understand the chemistry of living organisms. Major discoveries concerning the biochemistry of genetic material provide the tools of molecular biology that are essential to contemporary life sciences research.

Biochemists and molecular biologists are concerned with living things. They must acquire some knowledge of the biological sciences. Since a biochemist's tools are the physical sciences, he or she must receive sound education in mathematics, physics and chemistry.

Challenging positions for well-trained biochemists and molecular biologists are available in colleges and universities, state and federal laboratories, research institutes, medical centers and in an

increasing number of industrial organizations, particularly the pharmaceutical and food industries. Biochemists are involved with research on the chemistry of processes occurring in plants, animals, and various microorganisms, and with the discovery and development of antibiotics, vitamins, hormones, enzymes, insecticides and molecular genetic techniques.

At the undergraduate level a major in biochemistry and molecular biology administered by the Department of Biochemistry and Molecular Biology is available through the College of Agricultural Sciences and Natural Resources. The department also offers a B.S. degree in biochemistry through the College of Arts and Sciences. An honors program is available. The curriculum provides a broad background in chemistry and biological science and permits flexibility in meeting particular interests of the student. Courses in biochemistry are based on general, organic and analytical chemistry. The biochemistry and molecular biology curriculum provides students with sufficient background in the basic sciences of mathematics, physics, chemistry and biology to meet the needs for graduate study in most fields of modern science related to agriculture or medicine. The curriculum is excellent for preprofessional students of medicine, dentistry and veterinary medicine.

### Graduate Programs

Because many of the opportunities in biochemistry require advanced course work, a major part of the program in the Department of Biochemistry and Molecular Biology is concerned with its graduate program leading to the M.S. or Ph.D. degree. This graduate program is an integral part of extensive basic research activities in the Oklahoma Agricultural Experiment Station. These research activities provide opportunities for part-time employment of undergraduate majors to improve their professional competence.

**Prerequisites.** Although the B.S. in chemistry or biochemistry is preferred, students with strong backgrounds in other biological or physical science disciplines are eligible. Individuals not having at least eight semester credit hours in each of organic and physical chemistry and calculus must take appropriate undergraduate courses to make up deficiencies. The results of the three general GRE exams (verbal, quantitative, analytical) are required for entrance. An advanced GRE subject matter exam (biochemistry, chemistry or biology) is also recommended. A cumulative GRE score of 1500 is normally required.

**Degree Requirements.** A more detailed description of the graduate study

program in biochemistry is available from the department upon request. The requirements listed below complement the general graduate requirements described in the "Graduate College" section of the *Catalog*. After the first semester, continuous attendance and participation in the departmental seminar is expected.

**The Master of Science Degree.** Twenty-four credit hours of formal graduate courses are required, including BIOC 5753 (or 4113), 5853, and 5930. In addition, a student must present an acceptable research thesis (six hours) and pass a final oral examination covering it and related material. Research advisers are selected at the end of the first semester.

A non-thesis Master of Science degree is also available. It does not require a research thesis, but requires a report and extensive technical training in the laboratory. The non-thesis M.S. is not recommended for students wishing to pursue a Ph.D. program later.

**The Doctor of Philosophy Degree.** The course requirements are determined with the aid of the student's graduate advisory committee. Usually they follow these guidelines: total of 30-40 credit hours of formal graduate course work which includes all the courses listed for the M.S. degree, at least four of the advanced graduate courses in biochemistry (6000 level) and two offerings of Special Topics (6820). Additional course requirements, appropriate to the student's interests, are determined by the advisory committee. The advisory committee is selected at the end of the second semester. Each student will take a series of cumulative examinations beginning in September of his or her first year. A more comprehensive qualifying examination is also given, usually at the end of the fourth semester of graduate study.

One year of a foreign language at the college level is required. The student must present, and defend in a final oral examination, an acceptable research thesis which contains a substantial original contribution to the field of biochemistry. The department offers research experience in a variety of areas of biochemistry.

## Botany

**Professor and Head James D. Ownby, Ph.D.**

Botany is the science concerned with all facets of plant life. Green plants are the constantly renewable source of food and fiber, and it is important that they be thoroughly understood as survival and ecological balance depend upon this

knowledge. As populations increase, the need for more and better supplies of food and fiber also increases. The study of botany underlies several applied sciences such as agronomy, forestry, horticulture, plant pathology, range, lake and wildlife management.

To major in botany a student should have a strong interest in science with a good background in chemistry, physics and mathematics. Majors with a B.S. degree may qualify for secondary school science teaching licensure, for technical positions with the federal and state governments in plant inspection and plant introduction work, for plant breeding programs, and for various activities concerned with plants in private industry, such as plant biotechnology.

Facilities used in undergraduate teaching include well-equipped plant structure-function and ecology laboratories, constant-environment chambers, the 160-acre McPherson Preserve and herbarium with over 125,000 plant specimens. All of the faculty teach and do research in their specialty areas of botany: plant ecology, physiology, taxonomy, anatomy, developmental genetics, algal ecology, and molecular biology.

## Graduate Programs

Programs of research and study leading to the degrees of Master of Science and Doctor of Philosophy are offered in many areas of botany, including anatomy and ultrastructure, ecology, physiology, taxonomy, population biology, genetics and development, and biotechnology-related areas such as tissue culture and plant molecular biology.

**Prerequisites.** Applicants for admission must have received a baccalaureate degree from an accredited college and should have had 40 semester hours (or equivalent) in upper-division courses in the biological and physical sciences. A grade-point average of 3.00 (on a 4.00 scale) or above is required for unconditional admission. All applicants are required to submit scores for the Aptitude and Advanced Biology portions of the Graduate Record Examination.

Prerequisites for graduate degrees include successful completion of courses in the areas of plant taxonomy or field botany, plant morphology and anatomy, plant pathology or microbiology, plant physiology or cellular and molecular biology, genetics and ecology. Chemistry through organic and mathematics through calculus are also required. Students with an undergraduate major in plant science will have completed a substantial portion of this minimal list upon matriculation; those with a less closely related major may be required to

take some background courses without graduate credit. Final authority for each student's plan of study, including courses to be taken at the undergraduate level, resides with the student's advisory committee.

A potential graduate student may be required to take one or more advisory examinations covering the various subject matter areas of botany. The examinations to be taken will be determined by the student's screening or advisory committee. The results will be used to determine course work needed or the level at which the student should proceed.

Demonstrated research competence through submission and acceptance of a thesis or dissertation is required for all graduate degrees. A minimum of one semester teaching experience is required of all M.S. and Ph.D. candidates. This requirement may be satisfied by enrollment in a college teaching practicum course (GRAD 5990) or by one semester teaching experience. The requirement for competence in a foreign language will be determined by the student's advisory committee.

All graduate students are expected to attend and participate in departmental seminars.

**The Master of Science Degree.** Plans of study must contain 30 credit hours including at least 21 semester credit hours numbered 5000 or above, six credit hours of thesis and two credit hours of seminar. A minimum of 16 semester credit hours must be in the major department or field, above the prerequisites required for entrance into the M.S. program.

**The Doctor of Philosophy Degree in Plant Science.** The Department of Botany is one of seven departments participating in the multidisciplinary Ph.D. in plant science program. Students in this program have great flexibility in research and course work. The student who chooses botany as a home department has a botany faculty adviser from within the department, and will take BOT 6000 research hours in the department. To receive the Ph.D. in plant science, students must enroll in a total of 90 credit hours beyond the B.S. or 60 credit hours beyond the M.S. No fewer than 36 nor more than 60 hours of BOT 6000 are allowed in the plan of study. Two hours of seminar (BOT 5850) must also be included in the plan of study. Students may choose as a specialization area either cellular and molecular, organismal, or ecological plant science. After a Ph.D. candidate has completed most of the course work, qualifying examinations are scheduled. These exams cover major areas of the student's plan of study; all relevant subdivisions of plant science are

included. The examinations are both written and oral.

# Chemistry

**Regents Professor and Chairman  
Lionel M. Raff, Ph.D.**

Chemistry is the science that deals with the composition, structure and interactions of matter of all kinds. Materials obtained from the earth, such as ores, petroleum and natural gas, as well as those from plants and animals, such as food, fibers and antibiotics, are all studied and modified through chemical means. The chemist creates from natural products new and useful substances that add to the enjoyment of life. He or she creates new agents to combat pests that destroy great portions of food supplies and new drugs to fight diseases of many kinds. Chemists lead the fight against pollution of the environment that results from rapid multiplication of population and of use of energy. Chemists are at the forefront of the search for new energy sources and for ways to better use existing sources of energy.

A great curiosity concerning the physical world should be characteristic of one who is considering chemistry as a profession. The student should want to learn more about the changes of materials and to use his or her knowledge for the betterment of life. The student should have an interest in physics and mathematics, since those subjects' principles are basic to the study of chemistry.

Chemists are employed by most large companies in this country, especially those that produce foods, medicines, fuels and materials. These chemists work in the areas of research, sales and quality control. Many chemists become teachers in public schools or colleges. State and federal agencies employ chemists for research and analysis. Generally an M.S. or Ph.D. degree is desirable for those interested in research or college teaching.

The Department of Chemistry offers two bachelor's degrees: (1) a B.S. degree that is accredited by the American Chemical Society; and (2) a B.S. degree that requires less specialization.

The chemical laboratories are modern and well-equipped with instruments for determination of properties of chemicals and studies of reactions. Individual laboratory work is encouraged.

## Graduate Programs

**Prerequisites.** The student should have at least eight semester credit hours (or

the equivalent) in general, analytical, organic, and physical chemistry. The physical chemistry should have been based on mathematics through calculus.

A beginning graduate student must take diagnostic examinations covering one year of undergraduate study in analytical, organic, inorganic and physical chemistry before the student enrolls for the first time. If the student fails to pass one of these examinations, he or she will be required to take the appropriate courses without graduate credit at the first opportunity. No graduate credit may be earned for chemistry courses numbered below 4000. The student may enroll in graduate courses for which the student has passed the entrance examination.

**Admission Requirements.** Admission requirements are minimal. For admission without qualification a grade-point average of 3.00 or better is required. Deserving applicants with grade-point averages less than 3.00 are infrequently admitted under probationary conditions. Additional support of the application is sought in the form of three letters of recommendation. Graduate Record Examination scores are not used as a criterion for admission. Recommendations on admission to the Graduate College are made on behalf of the applicant by the departmental admission officer. Acceptance by a permanent adviser is not a prerequisite to admission to the program.

**Degree Requirements.** A more detailed description of the graduate study program in chemistry is available in a brochure which will be supplied by the department upon request. The requirements set forth below complement the general requirements stated in the "Graduate College" section of the *Catalog*.

Attendance and participation in the departmental colloquium and CHEM 5011 and 6011 are required.

**The Master of Science Degree.** Students must complete at least 30 credit hours of graduate course work in chemistry or related fields.

Each student must present an acceptable thesis dealing with a research problem and pass a final oral examination covering it and related material. Research on the thesis problem should be started as early as possible in the graduate program.

**The Doctor of Philosophy Degree.** Work is offered which leads to the degree with specialization in analytical, inorganic, organic or physical chemistry. A major in biological chemistry is offered by the Department of Biochemistry. The student must pass a qualifying examination in the student's field of specialization.

An acceptable thesis must be pre-

sent which contains a substantial original contribution to the field of chemistry. The student must pass a final oral examination covering the thesis and related material.

The Doctor of Philosophy degree requires the completion of at least 90 semester credit hours of work beyond the bachelor's degree.

The course requirements are determined by an advisory committee which is appointed for each student.

# Communication Sciences and Disorders

**Associate Professor and Head Arthur L. Pentz, Jr., Ph.D.**

The Department of Communication Sciences and Disorders prepares students through the master's level to serve individuals of all ages who exhibit speech, language, cognitive and/or hearing disorders. The undergraduate program is a preprofessional degree program. It first emphasizes the study of the development and functioning of the individual who presents normal speech, language and hearing. It also stresses academic course work and clinical observation experiences in the nature, symptoms and treatment of those who possess various kinds of communication disorders. Acceptance into the undergraduate program is considered on a grade-point average for 36 or more hours attempted.

The master's level program in speech-language pathology is designed to provide students with intensive course work in the various communication disorders and exposure to a wide variety of challenging clinical activities. This includes a full time, off-campus clinical externship for at least eight weeks which serves as an excellent transition from on-campus practicum to an actual professional position after graduation. Students who graduate from this department are prepared to take positions in public schools, hospitals, community speech and hearing centers, private practices and other related settings. All graduates meet the academic and practicum requirements for the Certificate of Clinical Competence in Speech-Language Pathology of the American Speech-Language-Hearing Association and licensure by the state of Oklahoma in speech and language pathology. In addition, almost all students elect to earn the state teaching

certificate. The program is nationally accredited in speech-language pathology.

## Graduate Programs

**Prerequisites.** Other than the general requirements of the Graduate College, no other prerequisites are required for the Master of Arts degree. The amount of course work taken at the undergraduate level in communication sciences and disorders and related areas will determine the amount of time required for the degree.

**Admission Requirements.** Applicants should have a grade-point average of 3.00 ("B") in all work and at least a 3.00 in the major, strong letters of recommendation from those familiar with the student's previous academic background, and GRE scores acceptable to the Graduate Faculty. Beyond that, the number of students admitted will depend on the number of places available in the program. Interviews are conducted prior to admission. Students with a baccalaureate degree are required to be admitted to a graduate degree program to take course work in this department. Application deadlines can be obtained from the department.

International students follow the same application procedure as U.S. students with one addition. If English is not the student's native language he or she is required to score a minimum of 550 on the Test of English as a Foreign Language (TOEFL) and a minimum of 220 on the Test of Spoken English (TSE). It is especially important that students have readily intelligible spoken English, because they will be conducting therapy sessions in English. International students are eligible to apply for graduate assistantships which also qualify them for in-state tuition. The International Student Services Office is available on campus to assist international students.

**Program Requirements.** The program leading to the Master of Arts provides a thorough exposure to the nature and causes of communication disorders and to clinical procedures, including extensive practical experience within the OSU clinic and in a variety of off-campus settings, including a full-time externship for at least eight weeks at the end of the program. All practicum experiences are supervised closely by faculty members or by other highly qualified and certified speech and language pathologists and audiologists. The program leads to the certificate of clinical competence of the American Speech-Language-Hearing Association, state teacher certification, and state licensure in speech-language pathology.

The degree consists of a minimum of 29 semester credit hours in courses that

examine the nature, causes and treatment of communication disorders and related areas, and a minimum of nine semester credit hours in clinical practicum courses. This includes an eight-week off-campus externship for which the student may receive up to six semester credit hours.

Students holding undergraduate degrees in other fields are encouraged to apply for admission. Undergraduate prerequisites will add approximately 37 credit hours to the program.

**Examinations.** Students may complete a master's thesis or pass a comprehensive examination and complete a portfolio.

## Computer Science

Associate Professor and Head Blayne E. Mayfield, Ph.D.

Computer science is concerned with theoretical and practical methods of storing, processing and communicating information by means of computers. Professional computer scientists obtain a formal education through the B.S., M.S. or Ph.D. degrees and apply their knowledge to many diversified fields of science, engineering, business and communications. Computer science offers opportunities to both specialists and generalists.

In little more than three human generations, the computing field has evolved from one associated primarily with engineering and scientific calculations of only casual interest to the layperson, to a factor of significant influence in almost every aspect of modern life. Technical careers in computer architecture and software design, as well as applications in the business and scientific areas, require a thorough knowledge of the principles of computer science. In addition, most managers in any field require some familiarity with computers, not only to be able to understand them, but also to incorporate them into their own decision-making processes.

The department has a cooperative education program. Cooperative education is the process of education that formally integrates college studies with work experiences in cooperating employer organizations. It blends classroom study with planned and supervised employment in an area relevant to the student's major. Students who are in their junior year may enter this program and alternate semesters in the classroom with semesters on the job. A student goes into the work setting at least three times.

The department offers the full range of degree programs-B.S., M.S. and Ph.D. For individuals interested in teaching computer science at a two-or four-year institution, an Ed.D. program is also available.

Most B.S. and M.S. graduates obtain positions in industry. Approximately half of the Ph.D. graduates take university teaching and research positions and half are employed in industry.

Computing facilities available include the University Computer Center computers, an IBM 3090-200S, a VAX, and a DEC 5000-240 RISC. The department has a Sequent Symmetry S81 computer which is UNIX based. There are also several NCD X-Terminals with windowing graphics displays that are available for some classes.

Computers can be accessed through the University Computer Center Network. Computer terminals are available in various buildings on campus. Some of the residence halls also have terminals available. Both the University and departmental computers can be accessed through the network. Computers are available 24 hours a day for at least six days a week.

The department participates in the CSNET and USENIX networks for computer science research and UNIX users. (UNIX is a trademark of Bell Laboratories.)

## Graduate Programs

The department offers degree programs leading to the Master of Science degree, the Doctor of Education degree in higher education, and to the Doctor of Philosophy degree. These programs are designed to prepare an individual to pursue a career in either an academic or an industrial setting. In addition to taking a prescribed set of core courses, a student must take sufficient courses in one specialized area. In addition to course work, a student must complete a thesis for an M.S. degree and a dissertation for a Ph.D. degree.

The core course requirement assures the student of breadth of knowledge in computer science; the freedom to choose an area and additional research assures the student of enough depth in some facets of computer science to be able to carry out independent investigations in those areas and put concepts and ideas learned to practical use.

For a master's degree, 30 hours of graduate credit, including a six-credit-hour thesis, are required. A master's degree student is required to pass an oral examination over the thesis. There is no foreign language requirement for the M.S.

For an Ed.D. or a Ph.D., 60 credit hours beyond a master's degree or 90 hours beyond a bachelor's degree are required. A dissertation of no more than 30 hours is required. The Ph.D. dissertation must describe original research while the Ed.D. dissertation may be expository. Ed.D. and Ph.D. students must pass (at an appropriate level) written preliminary examinations in areas of specialization. For Ed.D. students, one of the speciality areas must be computer science education. Master's students who pass these examinations at the Ph.D. level are encouraged to pursue a Ph.D. program of study. Reading knowledge of at least one foreign language is required for a Ph.D., but not for the Ed.D. Approximately 700 students graduate each year in the United States with Ph.D.'s in computer science. In general, both academic and industrial positions exist for each Ph.D. graduate.

The candidate's baccalaureate degree need not be in computer science in order to enter this program. Admission to the program does require: (1) an undergraduate degree; (2) successful completion of a 10-hour calculus sequence; (3) demonstrated competence in programming with some procedure-oriented programming language such as C, FORTRAN, or PASCAL; (4) qualifying grade-point average and Graduate Record Examination scores.

## Economics and Legal Studies in Business

Professor and Head Joseph M. Jadow, Ph.D.

Economics is a science of choice. The study of economics centers around individuals' attempts to improve their living standards. It provides a comprehensive view of how a society is organized to transform the limited resources available into want-satisfying goods and services. It investigates the principles underlying the operation of the economic system, and seeks to determine its weaknesses and to prescribe policy measures that will improve its operation. In the process it ranges over a host of the most important problems confronting contemporary society—the causes of and remedies for depression and inflation, the determinants of and methods for improving income distribution, poverty problems and welfare measures, the role of the government in economic activity, the requisites for economic growth and development,

pollution and congestion and their control.

The primary objectives sought in the undergraduate curriculum are to develop a broad understanding and perspective of the economic aspects of people's activities, coupled with thorough training in the fundamental tools of economic analyses. Toward these ends, the development of elementary mathematical and statistical skills is highly desirable, as is complementary study in the social and behavioral sciences, accounting and business administration.

A major in economics prepares students for positions with business firms, nonprofit private organizations and government agencies—both national and international. It provides an excellent background for the study of law and international relations. It qualifies competent students to undertake the graduate work necessary for professional positions in economic research and college or university teaching. A degree option in business economics and quantitative studies is offered through the College of Business Administration to provide additional training in analytical methods and communication skill for both public and private sector occupations.

### Graduate Programs

The department offers work leading to the Master of Science degree and the Doctor of Philosophy degree. The graduate program in economics prepares economists for academic careers as well as research and administrative positions in business and government agencies.

Graduate fields of specialization include monetary economics, public finance, international economics, economic development, econometrics, labor and human resource economics, industrial organization, and urban and regional economics. In addition, graduate courses are offered in the history of economic thought and in mathematical economics.

The initial admission to a graduate program is determined by an elected graduate studies committee on the basis of the applicant's previous academic record; verbal, quantitative and analytical scores of the Graduate Record Examination; and letters of recommendation.

**The Master of Science Degree. Admission** to the master's program in economics is granted to college graduates with superior academic records whose preparation has been broad and thorough. They need not have majored in economics as undergraduates but must be well grounded in economic fundamentals. A good background in one or more such fields as history, philosophy, mathematics, statistics, political science, English,

sociology, accounting, finance, psychology, or management is particularly helpful to the graduate student in economics. An applicant whose prior preparation is deficient in some respect, may, if otherwise qualified, be admitted to the program but will be required to remove the deficiency, increasing somewhat the time needed to complete work for the degree.

Each graduate student is guided in the preparation of a program of study by a graduate studies committee. At the master's level there are two options. One option provides the student with a well-rounded program that avoids premature specialization in some particular area of economics. The candidate for the master's degree is required to show competence in basic economic theory and statistical methods, together with an understanding of the fundamental institutional operations of the United States economy. The second option is in applied economics which stresses communication skills, quantitative analysis and course work from other disciplines related to their career objectives.

Each program contains enough electives to permit considerable choice among areas of emphasis. A research report is required of all students who take only the M.S. degree. Those accepted for the Ph.D. program have the option of applying for and receiving the M.S. degree without the research report upon successful completion of the Ph.D. qualifying examination and the filing of an approved Ph.D. thesis topic with the Graduate College. A foreign language is not required.

### The Doctor of Philosophy Degree.

Admission to the doctoral program in economics is granted to college graduates who have satisfactorily completed at least one year of graduate work in economics and who have superior academic records.

This program stresses balanced preparation in economic theory and in mathematics and statistics, as well as competence in subject-area fields of specialization. The student is required to pass qualifying examinations in the theory core and in a field of specialization. (The theory core is not considered a field of specialization.) Competence must be demonstrated in a field of specialization, either through course work or by passing a qualifying examination in the field. An advisory committee helps the student plan a program of study to achieve these objectives. A foreign language is not required.

A dissertation based upon original research is required of the candidate for a Ph.D. degree in economics. A final oral examination deals principally with the dissertation and fields to which it is most closely related.

# English

## Associate Professor and Head Jeffrey Walker, Ph.D.

The study of English literature and language is fundamental to any education. Not only does it provide familiarity with the literary works that shape cultural heritage, but it also develops the abilities to think analytically, to speak and write effectively, and to consider various points of view when dealing with people and ideas. Educated people in almost every career and lifestyle regard these skills as invaluable.

The Department of English prides itself on the diversity of its course offerings and on its small lecture and discussion classes. The B.A., M.A. and Ph.D. degrees are awarded through the department and a full range of courses are offered in seven areas: literature, composition and rhetoric, technical writing, creative writing, linguistics, teaching English as a second language, and film. The number of students in any English class rarely exceeds 30; and in a writing class, including freshman-level classes, the enrollment cannot exceed 25. The maximum number of students in a graduate-level class is 10.

An undergraduate English major has three options: a traditional English major, secondary education teaching certification, or technical writing, each of which emphasizes literature and writing in varying proportions. English majors may choose from courses in all historical periods of British and American literature, from early to contemporary, and in all genres—novel, film, short story, poetry, and drama. Every literature course emphasizes literary appreciation and analysis and allows ample opportunity for discussion and writing. The student in the traditional major may also take creative writing from practicing, published writers and may specialize at the advanced level in fiction writing, poetry writing, and scriptwriting. Also available are courses in linguistics, which is the study of language, and technical writing, which is writing for science and industry.

Many English majors pursue careers directly related to their major, such as in technical writing or in teaching. An English major with a technical writing option would be well prepared to pursue a career as a writer, editor, publications manager, or information developer. Students who want to teach may earn secondary teaching certification in English through either the Department of English or the College of Education, or they may decide to go to graduate school in order to teach in a college or university. A great many English majors have found the teaching

profession a rewarding and challenging one. More students are finding that an English major is excellent preparation for law school because it develops the analytical and language skills lawyers use. But one need not have definite career goals to major in English. English majors regularly pursue careers not only in education, professional writing, and law, but also in medicine, the ministry, publishing, government, and business. Professional schools and businesses value English majors both for their communication skills and for their broad-mindedness.

The Department of English serves a great many students other than those majoring in English. It offers a variety of writing courses to fulfill the University's composition requirements; and English courses in literature, technical writing, creative writing, and film are very popular electives for students in all majors. Many students find English such a good complement to their first major that they choose a second major or minor in English.

A Bachelor of Arts in English requires 39 hours of lower- and upper-division English courses. An English minor requires 18 hours of English, at least 9 of which must be upper-division. (These hours do not include Freshman Composition.)

## Graduate Programs

Graduate study in English at Oklahoma State University allows students freedom of choice. Only one course, Introduction to Graduate Studies, is required of all graduate students, and only one additional course, Teaching Freshman Composition, Teaching Technical Writing, or TESL Methodology, depending on the student's career goals, is required of all graduate teaching assistants. As a result, all students, in cooperation with their advisers, design their programs in accord with career goals. In addition to American and British literature, the Department of English offers graduate work in composition and rhetoric, creative writing, film, linguistics, and literary theory. At the M.A. level, separate programs in teaching English as a second language (TESL) and in technical writing prepare teachers for the bilingual classroom and technical writers for industry. Ph.D. degree candidates have an additional interdisciplinary area that allows them to blend other disciplines with literary studies. The variety of choices and the flexibility built into the program prepare the graduate to meet the demands of a changing academic marketplace.

**Application Deadlines.** The deadline for spring admission is October 15. The early decision deadline for fall admission is February 28; the final deadline is April 1.

**Stipends, Scholarships and Awards.** All graduate assistants are charged in-state fees. Stipends for graduate assistants and associates are paid on a nine-month basis.

**M.A. Examinations.** During the last semester of course work—but no earlier—graduate students must take Exam A. Students in TESL and technical writing students will take the exams designed specifically for those areas.

*Exam A.* This five-hour exam is administered on a single day. The exam contains three essay questions in each of the 10 areas of study, from which the student will answer four questions. Exam A, therefore, presents students with 30 questions, three from each of the 10 areas. The areas of study are:

1. British literature Old English to 1660 (including Milton)
2. British literature Restoration through 19th century
3. American literature colonial through 19th century
4. Twentieth-century British and American literature
5. Literary theory and criticism
6. Linguistics
7. Composition and rhetoric
8. Film
9. Technical writing
10. Teaching English as a second language (TESL)

Questions in technical writing and TESL on Exam A are general; they are not designed for technical writing and TESL students seeking the M.A., who take different exams.

*TESL Program Exam.* Students in the TESL program will take two five-hour exams:

1. TESL methodology/testing
2. Applied linguistics/grammar

*Technical Writing Program Exam.* Students in technical writing will take one five-hour exam. They will answer four questions from the following three areas:

1. Technical writing theory
2. History of scientific and technical writing
3. Document design

**Ph.D. Examinations.** After the appropriate amount of course work and prior to beginning the dissertation, the student must take and pass Exam B.

*Exam B.* Exam B will consist of two five-hour exams. The student, in consultation with the advisory committee, will select the two areas on which he or she will be examined. These two areas will be chosen from the following:

1. Early American literature
2. Nineteenth-century American literature
3. Old and Middle English literature
4. Renaissance British literature (including Milton)
5. Restoration and eighteenth century British literature
6. Nineteenth-century British literature
7. Modern British and American literature
8. Contemporary British and American literature
9. Literary theory and criticism
10. Practical poetics and fictional rhetoric
11. Film
12. Composition and rhetoric
13. Linguistics
14. Technical writing
15. Teaching English as a second language

Details on Exam A and Exam B are found in the departmental *Guidelines*.

**Teaching Opportunities.** Graduate teaching assistants may enjoy a wide range of assignments, including teaching freshman composition and working individually with students in the writing laboratory. After acquiring some classroom experience and demonstrating excellence, assistants may also teach introductory courses in literary genres, creative writing, or technical and report writing.

**The Master of Arts Degree.** Every M.A. degree student is required to take 24 credit hours of course work and six thesis hours. Applicants must have a minimum of 24 hours of undergraduate English courses. ENGL 5013, Introduction to Graduate Studies, is required of all M.A. candidates. The remaining 21 hours of course work will be chosen by students in consultation with their advisers.

In addition to 30 hours of work in English, a reading knowledge of one foreign language is required.

Master's degree candidates in literature prepare either a scholarly or a creative work for thesis credit. A thesis committee, consisting of a thesis adviser and two other faculty members, supervises this project. Students choose the faculty members with whom they work; the project should be a valuable experience for both candidates and supervisors.

**The Master's Program in TESL.** *Admission to Teaching English as a Second Language.* TESL is a program within English having its own course requirements and examinations. Applicants who speak English as a second language should have had an undergraduate concentration in English or the equivalent in

practical experience. After initial testing and counseling, international students may be asked to enroll in a course designed to improve their command of English. Applicants who speak English as a first language need not have majored in English, but they must have completed at least six hours of upper-division foreign language training. Native speakers who have not done so should expect to complete two semesters of foreign language courses in addition to English requirements.

TESL is especially relevant to the public school classroom as a result of recent legislation concerning bilingual education. Teachers in English and other areas of expertise will find this program especially useful. This program, however, does not serve as a substitute for teacher certification.

*Course Work.* Plan I: 24 hours of course work and a thesis for a maximum of six hours are required. Plan II: 33 hours of course work and a research project or substantial paper are required.

**The Master's Program In Technical Writing.** *Admission to the Technical Writing Program.* Technical writing is a program within English having its own course requirements and examinations. Applicants should have a background in a technical area and in technical writing. Following a review of previous academic and work experience, students may need to enroll in courses designed to improve their mastery of a technical area or technical writing or both. Students need not, therefore, have majored in technical writing or a technical area.

*Course Work.* Plan I: 24 hours of course work and a thesis for a maximum of six hours are required. Plan II: 33 hours of course work and a research project or substantial paper are required.

**The Doctor of Philosophy Degree.** A master's degree in English from an accredited university, a graduate grade-point average of 3.50 (on a 4.00 scale), a statement of purpose, a writing sample, and three positive letters of recommendation are the usual requirements for admission to the doctoral program. If one of these factors is not clearly present, admission may be granted with qualifications. The doctoral student is expected to earn 60 hours of credit beyond the hours required for the M.A. Of these 60 hours, a maximum of 20 hours may be devoted to the dissertation.

All Ph.D. applicants are admitted provisionally. Full admission to the doctoral program is determined in the second semester of enrollment based on the student's performance on the qualifying exam, Exam A, and on performance in course work.

A reading knowledge of two foreign languages or mastery of one foreign language is required of the doctoral student. Details about the foreign language and other requirements are found in the department's *Guidelines for the M.A. and Ph.D. Programs in English*.

Doctoral candidates submit a dissertation based upon original research and prepared under the guidance of a dissertation committee composed of at least three faculty members from within the department and one faculty member from outside the department. Creative writing students may present as their dissertations original works in poetry, drama (including filmscripts), or prose fiction. The dissertation is defended orally by the candidate at a public examination in which the argument, credibility, and value of the work are challenged.

**Course Requirement for Teaching Assistants.** In their capacity as teachers, assistants are required to enroll in Teaching Freshman Composition, Teaching Technical Writing, or TESL Methodology. This course appears on student transcripts and may be counted for English degree credit.

## Foreign Languages and Literatures

**Professor and Head** Kenneth J. Dollarhide, Ph.D.

The Department of Foreign Languages and Literatures offers French, German, Russian and Spanish as major fields of study. Minors may be earned in French, German, ancient Greek, Japanese, Latin, Russian and Spanish.

In all languages offered by the department, elementary courses are available for students with no previous experience. A special intensive course in Spanish (10 credit hours in eight weeks) is offered in the summer session. Students with previous foreign language experience may take placement tests to find the course best suited for their level of proficiency. A major in a foreign language is often supported by study of another language or work in other fields. Many language majors choose to qualify for an International Studies certificate. Several certificates, such as Asian, Latin American, Russian and Eastern European Studies and Ancient and Medieval Studies, are available.

The study of foreign languages is a vital and humanizing part of a general

education. In a rapidly changing and shrinking world, it offers new cultural insights, breaks down insularity, fosters discipline of thought and expression and leads to a better understanding of one's native language. Foreign language majors may expect to find openings in a wide variety of careers in law, medicine, government, industry and commerce, all of which require a good liberal arts degree. Job opportunities are greatly enhanced for those who combine foreign language study with a major or minor in other disciplines. Moreover, there is a growing demand for foreign language teachers in secondary education. Bachelor of Arts candidates may qualify for teaching licensure without increasing the number of hours required for graduation.

In addition to the standard courses in language, literature and civilization for individual languages, the department offers literature-in-translation courses for general education and courses in German for reading knowledge.

## Geography

**Associate Professor and Head  
Thomas A. Wikle, Ph.D.**

Geography is concerned with the surface of the earth and its immediate atmosphere. Geographers study the similarities, the differences and interactions among phenomena in this region. Geographers are interested in the economic, social, political and environmental qualities of places, and in how these attributes interact.

Geographers attempt to understand human behavior by answering such questions as: Where do people work? Where do they play? Where do they live? Why do people make these locational choices? What are the consequences of these decisions and behavior?

Because the physical environment is important in many explanations of spatial behavior and spatial patterns, geographers have traditionally concerned themselves with relationships between humans and their environment. What impact do people have on the land? What impact does the land have on people? How do people perceive their environment? How does this perception influence their activities?

Finally, geographers examine spatial patterns and behaviors in specific regional contexts. These analyses occur at many levels-world-wide, national and local. These kinds of studies lead to suggestions for change and improvement-the application of geography to contemporary rural, urban and regional

problems. Thus many aspects of urban, regional and national planning are geographic in nature.

No academic discipline has broader interests than does geography, and the Department of Geography allows students the flexibility to pursue studies that lead to a wide range of educational goals and careers. Students with interests in environment, planning, real estate, economic development, international affairs, travel, area studies, management or education are among those which can be accommodated. A geography minor program is also available for those who see geography as complementary to another field of study.

Those who wish to study geography tend to be interested in their own surroundings and in other places. They also possess a curiosity for maps, the basic tool of the field. Students of geography will become familiar with remote sensing, computer graphics, statistics, geographic information systems and cartography-tools which facilitate geographic analysis.

Many careers are available to the geography major or minor. Recent graduates have been employed in urban and regional planning, community development, locational analysis in both the public and private sector, resource planning and management, various forms of domestic and foreign service, cartography and teaching. Geography also provides an excellent foundation for a liberal education and is a good basis for a career in business, industry or government.

The department possesses a cartographic laboratory, the Center for Applications of Remote Sensing, a computer mapping facility, field mapping equipment such as global positioning system receivers, an interactive weather analysis system with satellite data feed, and an ARC-INFO geographic information system. It is directly linked to the University's computing facilities through both standard and graphics terminals.

The North American Culture Society (NACS) is centered in the department and its journal *North American Culture* is edited and published by the department.

The department specializes in four areas: cultural and historical geography, resource management, geographic techniques, and the geography of sport, recreation, and leisure. Complementary course work supporting these specialized areas is available in other departments.

The Department of Geography offers the B.A. and B.S. degrees. An option in applied resource management is available within the B.S. degree. An advanced program leading to the Master of Science degree is also available.

## Graduate Programs

The Department of Geography offers work leading to the Master of Science degree. This degree program emphasizes preparation for employment in positions which are enhanced by an ability to recognize and to interpret spatial distribution, and to analyze regions.

Particular emphasis is placed on the applied aspects of geography, with many graduates employed by private business as well as city, regional, state and national planning agencies. Recipients of the M.S. in geography have also gone on to a variety of successful careers in other fields, including retail store location analysis, banking, and university teaching and research.

**The Master of Science Degree. Admission** to the master's program in geography is granted to college graduates with superior academic records. An undergraduate geography major is not required. Majors from the social, physical, and behavioral sciences and from the humanities are encouraged to apply. Incoming graduate students must demonstrate competency in cultural geography, physical geography, statistics, cartography, and other geographic concepts. If deficiencies are apparent, they will have to be corrected, possibly increasing the time needed to complete the degree.

Two basic plans of study exist for the master's degree. One plan requires a minimum of 30 credit hours including a thesis, the other is a 36-credit-hour non-thesis option. Plans of study can be developed to accommodate many interests. Major faculty interests include resource management, cultural and historical geography, regional analysis and development, and the geography of sports, recreation and leisure.

## School of Geology

**Brown Monnett Professor, Regents  
Professor and Head Zuhair F.  
Al-Shaieb, Ph.D.**

Earth is the residence of the human race. It is essential to develop a better understanding of the composition, internal and external processes, that affect the Earth. Earth is an outdoor laboratory filled with opportunities to observe Earth processes in action. By applying knowledge of forces that shape the Earth, geoscientists seek to reconstruct the past and anticipate the future. Geoscientists provide information to society for solving

problems and establishing policy for resource management, environmental protection, and public health, safety and welfare.

Geology is concerned with the processes, the history, and the characteristics of the rocks and sediments that shape the Earth. Human activities, predominantly on or near the surface, have utilized rocks and rock products, mainly petroleum and metals, to contribute to the quality of life. Because the Earth is dynamic—that is, the land surface is constantly changing—knowledge of earthquakes, volcanoes, plate tectonics, floods and landslides, to name a few dynamic events, is critical to minimize human suffering and economic loss. Within geology, different specialties, such as petroleum geology, ground-water geology (hydrogeology), geomorphology (study of surface processes), structural geology, and paleontology (study of fossils), have developed.

The School of Geology offers traditional academic program services, awards B.S. and M.S. degrees in geology and conducts various outreach programs. Geology majors are provided a quality education designed to develop leadership skills and enhance employment opportunities. The School of Geology has embraced two areas with great potential for growth: hydrogeology/environmental studies in the geosciences, and sedimentary/petroleum geology. In both areas, the school has already established a sound infrastructure—appropriate faculty appointments, laboratory and computer upgrades, and a sound record of productivity. Geology undergraduates are eligible for one of at least 10 departmental scholarships available, based on academic achievement and need. Teaching assistantships, research assistantships, and fellowships are available for qualifying geology graduate students.

Geologists are employed extensively in applied and pure research and in teaching. Applied research includes the exploration for, and development of, oil and gas fields, metallic and nonmetallic mineral deposits, and reservoirs of ground water. The geologist is well-prepared to pursue and direct environmental studies. Careers in research may be found with private employers, government agencies or universities. Teaching positions in geology are available at all levels, beginning with secondary education. As with most other sciences, more employment opportunities will be available to students with advanced training and a broad background. In general, careers as teachers in a college or university and in research are open only to those with graduate training.

## Graduate Programs

**Prerequisites.** The student should have at least 39 credit hours in geology. Additional undergraduate requirements to enter the master's degree program include: nine credit hours of chemistry, eight credit hours of physics, and four credit hours of zoology or botany. Deficiencies in course work must be made up by the student after entering the program. The Graduate Record Examination is recommended, but not required, for admission to the program.

**The Master of Science Degree.** Emphasis in the master's degree program is placed on applied geology, including hydrogeology, environmental geology, sedimentary/petroleum geology, paleontology, and structural geology.

**Thesis Option—**This option is recommended for students planning to continue graduate studies at the doctoral level. Each candidate must complete at least 30 semester credit hours of work beyond the prerequisites. As many as 12 of these may be taken in other departments of the University upon approval by the candidate's advisory committee. Each candidate is required to write a thesis. A final defense of the thesis and the research that it documents is required of all students.

**Nonthesis Option—**This option is recommended for students who do not plan to continue graduate studies. Each candidate must complete at least 33 semester credit hours of work beyond the prerequisites and three semester hours for the creative component.

Students who wish to pursue the Ph.D. degree upon completion of the M.S. have the option of entering the interdisciplinary program in environmental science administered through the Graduate College. Numerous Department of Geology faculty members currently advise students seeking the doctoral degree. Funding as a teaching or research assistant may be available to assist students seeking the Ph.D. in environmental science if the thrust of their research is related to geology.

## History

**Associate Professor and Head Ronald A. Petrin, Ph.D.**

History is the record, explanation and interpretation of the totality of man's activities. The study of history is unique in its concern for the time factor in man's development. History enhances the individual's knowledge of self and gives perspective and deeper meaning to

contemporary events. Courses in the Department of History are intended to give the student a broad understanding of the evolution of civilizations, peoples, countries and institutions, and an insight into the meaning of this evolution, as well as to prepare graduates for many types of employment.

Because history is basic to many special fields, the department's instruction is designed to aid students interested in education, law, journalism, scientific and technical disciplines, public service and business administration. Students in colleges other than the College of Arts and Sciences who wish to pursue the study of history are encouraged to enroll in courses of interest. The Department of History offers a number of courses that satisfy General Education requirements in the social sciences and the humanities. It participates actively in the Honors Program and offers to its majors the option of pursuing a special plan of study leading to a Departmental Honors certificate. The Department of History also participates actively in the Area Studies certificate program.

## Graduate Programs

The Department of History offers programs leading to the M.A. and Ph.D. in history. In addition to the general Graduate College requirements, the candidate for the Master of Arts or Doctor of Philosophy degree with a major in history is expected to have prerequisites of approximately 30 semester credit hours (including 18 upper-division hours) of undergraduate history courses, with an undergraduate grade-point average of at least 3.00.

**The Master of Arts Degree.** Admission to the master's program requires submission of scores for the verbal, quantitative aptitude, and analytical sections of the Graduate Record Examination. Candidates for the Master of Arts degree choose one of three alternative plans. Requirements common to all three plans include completion of a course (HIST 5023) in historical methods of research and writing, several graduate seminars, and a two-hour oral examination at the end of the program. Students must maintain at least a 3.00 ("B") grade-point average. An advisory committee will be appointed for each student during the first semester of enrollment. The three plans are designed for different careers, and the distinctive requirements of each are summarized below:

Plan I—(This plan is recommended for those planning to continue graduate studies at the doctoral level.) Students must complete a minimum of 30 hours of graduate courses in three fields (at least one in United States history and one in

non-United States history). These hours must include at least nine hours of seminar offered by the department (reading and/or research), Historical Methods (HIST 5023), and six hours of thesis (HIST 5000). With the consent of the advisory committee, students may substitute one field in history with a field in a related discipline. Students must take at least six hours in the related discipline. The specific courses used to comprise this field must be taken at the graduate level and have the approval of that member of the advisory committee representing the related discipline.

Fields of study include:

Ancient Mediterranean world  
 Medieval Europe  
 Early modern Europe to 1789  
 Europe since 1789  
 East Asia  
 England  
 Latin America  
 Russia  
 United States to 1877  
 United States since 1877

Students must demonstrate satisfactory reading knowledge of one foreign language.

Plan II-(Students must be pursuing applied history.) Students must complete a minimum of 33 hours of graduate courses. These hours must include at least three hours of research seminar, six additional hours of seminar offered by the department (reading and/or research), Historical Methods (HIST 5023), an internship (HIST 5030), and three hours of report (HIST 5000). With the approval of the student's advisory committee, as many as 15 of these hours may be taken in related disciplines.

Plan III-Students must complete a minimum of 36 hours of graduate courses in three fields, at least one in United States history and one in non-United States history. (See "Fields of Study" listed under Plan I.) The 36 hours must also include at least three hours of research seminar, nine additional hours of seminar offered by the department (reading and/or research), Historical Methods (HIST 5023) and a three-hour creative component (master's research paper). The creative component requirement is satisfied by the course HIST 6120, Special Studies in History. At least six hours of the course work must be in United States history and at least six hours in non-United States history. With the approval of the student's advisory committee, as many as nine of these hours may be taken in related disciplines.

**The Doctor of Philosophy Degree.**

Admission to the doctoral program requires a satisfactory score on the Gradu-

ate Record Examination, including the Advanced Examination in History. Each applicant must also meet Oklahoma State University requirements for the M.A. degree in history, with a grade-point average of at least 3.20 (on a 4.00 scale) in previous graduate work in history.

No definite course requirements apply to all students. Work necessary to prepare the student for his or her written and oral examinations will be indicated in a plan of study which is prepared and approved by an advisory committee. Generally, a minimum of 60 semester graduate credit hours beyond the M.A. degree with a "B" grade average for all courses is required.

The prospective doctoral student must offer four fields for examination, one of which may be a pertinent field outside of history. Students specializing in United States history must offer for examination:

1. The United States history field.
2. One chronological or topical field from the following:  
 United States colonial, 1600-1787  
 Nineteenth-century United States, 1787-1877  
 Modern United States, 1877-present  
 United States economic  
 United States military  
 United States social and intellectual  
 United States South  
 United States West

3. Two fields from the following:  
 Ancient Mediterranean world  
 Medieval Europe  
 Early modern Europe to 1789  
 Europe since 1789  
 East Asia  
 England  
 Latin America  
 Russia

With the consent of the advisory committee, a student may substitute for one of these fields a pertinent field outside history. At least 12 hours of graduate course work in a field outside history would normally be expected.

Students specializing in non-United States history must offer for examination:

1. Four fields from the following, one of which must be United States history:  
 Ancient Mediterranean world  
 Medieval Europe  
 Early modern Europe to 1789  
 Europe since 1789  
 East Asia  
 England  
 Latin America  
 Russia  
 United States

2. With the consent of their advisory committee, students may substitute for one of the fields (except United States history) a pertinent field outside history. At least 12 hours of graduate course work in a field outside history would normally be expected.

Upon admission to do graduate work at the doctoral level, the student's temporary adviser is the departmental director of graduate studies. Before the middle of the student's second semester, an advisory committee is appointed to assist the student in preparing the plan of study. This committee will consist of four members of the departmental graduate faculty (one from each of the examination fields), including the student's major adviser, who acts as chairperson.

No student is admitted to candidacy until he or she has (1) demonstrated a reading knowledge in at least one foreign language; (2) completed all course work on the plan of study; (3) completed with a "B" grade graduate courses in historical methods and historiography; (4) obtained approval of a proposed dissertation topic; and (5) passed comprehensive written and oral examinations in each of the areas of concentration.

Upon admission to candidacy, the student begins work on the dissertation. Supervised by the major adviser and members of the advisory committee, the dissertation provides the student an opportunity to do original research on a topic within the major area of study. The final dissertation must be submitted to the Graduate College in accordance with the regulations contained in the "Graduate College" section of the *Catalog*. Upon completion of the dissertation, the student undergoes a final examination. Oral in nature and no more than two hours in length, the examination is primarily a defense of the dissertation.

## School of Journalism and Broadcasting

**Professor and Director Marian D. Nelson, Ed.D.**

At Oklahoma State University, the professional areas of mass communication are grouped in the School of Journalism and Broadcasting (S.JB). These areas seek to complement each other with a minimum of duplication.

A modern democratic society cannot live by its ideals if its mass media practi-

tioners are merely competent technicians who worry less about *what is* reported to the people than *how it is* reported. Citizens must have accurate information about social, political and economic problems as well as knowledge of actions taken by government agencies at all levels. From village council to Supreme Court, there can be no exception from the rule that public business is the public's business.

To speak to people through radio, television or the printed page requires a knowledge of the people to whom one wishes to speak and an understanding of the world in which they live. Therefore, the curricula of the School of Journalism and Broadcasting are designed to offer more than training in communication techniques. Three-quarters of the SJB student's time at the University is devoted to a liberal education in the arts and sciences. At the same time, the student gains competence in a professional field through courses in the SJB.

In brief, then, the purposes of the School of Journalism and Broadcasting are:

1. To provide thorough, broadly-based professional education for the mass-media professions.
2. To encourage liberal and cultural background in the arts, literature, languages, and social, biological and physical sciences.
3. To promote scholarly research and professional performance.
4. To provide media leadership and assistance in extension and public service through high school and college educators and professional communication associations.
5. To emphasize high standards of ethics and responsibility in mass communication.

## Accreditation

The undergraduate programs of study in the School of Journalism and Broadcasting are accredited by the Accrediting Council on Education in Journalism and Mass Communication.

## Special Requirements

Any student who elects a specific option from those listed in succeeding pages should meet with an SJB faculty adviser as soon as possible. The ability to type a minimum of 30 words a minute is required for registration in all writing courses beginning with the course Mass Media Style and Structure (JB 1393). In addition, competence in typing is expected of all majors in the School. Prospective students are advised to prepare

for this requirement before enrolling at the University.

## Advertising and Sales

Ideas ranging from the introduction of new products and services to public service messages are communicated to mass audiences through advertising. Advertising also provides the economic base for the mass media-newspapers, radio and television, magazines, cable—thus freeing them from the political control found in many countries.

Upon a strong liberal arts foundation, majors in advertising build educational experiences that prepare them for work in copywriting and layout, production, management, media selection, market analysis, sales and campaign planning. Basically, the program focuses on decision-making and problem-solving, and includes courses in marketing, psychology, sociology, management and economics. Opportunities for part-time jobs, summer internships and participation in the Advertising Club round out the student's experience.

The program is also designed for students who wish to write, sell and produce commercial messages, and to move into management or ownership positions on radio and television stations.

The program is affiliated with the American Association of Advertising Agencies, the Advertising Federation of America and the Point of Purchase Advertising Institute.

## Journalism

News coverage today has gone beyond routine reporting on police and city hall activities. The modern newspaper or broadcasting station tries to spotlight the diverse components of our complex society. This objective calls for writers with broad interests and special knowledge in politics, religion, science, business, economics, art and public welfare. From the ranks of these reporters come the future print and broadcast journalists.

Programs offered in journalism are:

*News-editorial.* This program prepares students for writing and editing positions on newspapers, magazines, and trade journals, in radio and television news departments, and in book editing and publishing.

*Technical communication.* Students may combine agriculture and journalism or home economics and journalism to prepare for specialized work in technical writing and editing. These programs are developed in cooperation with the col-

leges of Agricultural Sciences and Natural Resources and Human Environmental Sciences.

*Community journalism.* This program, for those who plan eventually to own or manage weekly or small daily newspapers, requires experience in news, advertising and management, and thus requires a wide range of courses both within and outside the School of Journalism and Broadcasting. This program is an individualized one and should be entered only with the advice and consent of the SJB director.

Journalism majors assist in the publishing of a campus newspaper, *The Daily O'Collegian*, in the newsroom of radio station KOSU, and in audio and video news programming cablecast over a local cable station. Many juniors and seniors find this work a source of revenue to assist them in the cost of their education. Advanced news-editorial students also spend one summer on an internship with a commercial newspaper or broadcasting station, and some spend the spring or fall semester on a daily newspaper. Some hold part-time jobs as campus correspondents for various publications or work for media in the Stillwater area. Part of the laboratory work in JB 2393, 2413, 3413, and 4413 is done on *The Daily O'Collegian* or other publications.

The journalism program is affiliated with the Oklahoma Press Association, Southwest Journalism Congress, Society of Professional Journalists, and the Association for Education in Journalism and Mass Communications.

## Public Relations

Public relations practitioners perform a variety of tasks. As writers, they prepare news releases, speeches, trade-paper and magazine articles, texts of booklets, radio and television copy, product information and stockholder reports. They may supervise the company newspaper, magazine or newsletter, or other company communication programs.

The public relations option is related to and draws upon the news-editorial curriculum, as do the public information departments of government, business and industry. The public relations program is affiliated with the Society of National Association Publications, International Association of Business Communicators, and the Public Relations Society of America.

## Radio-TV

The programs in radio-television are designed to prepare students for careers in broadcasting. They offer graduates a chance to develop abilities in announcing, production, copywriting, news, documentary, sports, sales and management.

The undergraduate degree is offered in the professional option broadcast journalism. It is intended for students who wish to write, edit and produce news, discussion and documentary programs for broadcasting stations, networks and cable companies.

The facilities of the University's color-equipped Telecommunications Center, a full-time radio station, KOSU, an electronic news-gathering laboratory (ENG), and access to a channel on local television, make it possible for majors to acquire experience along with professional studies. Radio-television is affiliated with the National Association of FM Broadcasters, Radio Advertising Bureau, Oklahoma Association of Broadcasters, Oklahoma Broadcast Education Association, National Association of Broadcasters, Broadcast Education Association and National Public Radio.

## Graduate Programs

The School of Journalism and Broadcasting offers courses leading to the degree of Master of Science in mass communication. The School also cooperates with the College of Education in planning and supervising study leading to a Doctor of Education degree with emphasis in mass communication.

Prerequisites for unqualified admission to the master's program include a bachelor's degree in an area of mass communication with an overall grade-point average of 3.00. The Graduate Record Exam (GRE) is required. Potential doctoral candidates must have a bachelor's or master's degree in a mass communication area, in addition to professional experience. Graduates of a non-mass communication discipline may enter the Master of Science program, with the stipulation that they complete, without graduate credit, foundation courses relevant to career interests before they take graduate courses.

Basic emphasis is on application of current communication theories and research methods and designs to the professional aspects of mass communication. Electives in the behavioral sciences are encouraged.

## Mathematics

Professor and Head J. Brian Conrey,  
Ph.D.

Contemporary mathematics is concerned with investigations into far-reaching extensions of such basic concepts as space and number and also with the formulation and analysis of mathematical models arising from varied fields of application. Mathematics has always had close relationships to the physical sciences and engineering. As the biological, social and management sciences have become increasingly quantitative, the mathematical sciences have moved in new directions to develop interrelationships with these subjects.

Mathematicians teach in high schools and colleges, do research and teach at universities, and work in industry and government. In industry mathematicians usually work in research, although they have become increasingly involved in management. Firms employing large numbers of mathematicians are in the aerospace, communications, computer, defense, electronics, energy, and insurance industries. In industry a mathematician typically serves either in a consulting capacity, giving advice on mathematical problems to engineers and scientists, or as a member of a research team composed of specialists in several fields. Among the qualities which he or she should possess are breadth of interests and outlook, the ability to think abstractly and a keen interest in problem solving.

An undergraduate specializing in mathematics will begin with calculus or sometimes with college algebra and trigonometry. Well-prepared students are encouraged to establish credit in elementary courses by passing advanced standing examinations. All majors take courses in differential equations, and linear and modern algebra and modern analysis. The remainder of the field of concentration is determined by the student's interests and future plans. Courses are available that serve as preparation for graduate work, for high school teaching and for employment in industry. Students are encouraged to acquire proficiency in computer programming and to take substantial work in related fields in which they have a special interest.

Many of the more challenging positions in mathematics require study beyond a bachelor's degree. For example, university teaching requires a Ph.D., while teaching in a junior college requires at least a master's degree and possibly a doctorate. Approximately 25 percent of the students receiving a bachelor's degree in mathematics go on to graduate work.

## Graduate Programs

The Department of Mathematics offers programs leading to the Master of Science and Doctor of Philosophy degrees and also cooperates with the College of Education in supervising a program leading to the Ed.D. degree with emphasis in mathematics.

**Prerequisites.** A student beginning graduate study in mathematics is expected to have had, as an undergraduate, at least 18 semester hours in mathematics beyond elementary integral calculus including courses in differential equations, linear algebra and modern algebra. An applicant whose preparation is deficient may be admitted to the program, if otherwise qualified, but will be required to correct the deficiency, increasing somewhat the time required to complete work for the degree. Prospective graduate students are advised to take at least introductory courses in related fields such as physics, statistics, and computer science.

**The Master of Science Degree.** The department offers two Master of Science degrees, one in mathematics and one in applied mathematics. Each degree requires 32 credit hours of graduate course work in mathematics or related subjects. Two of these hours are waived if a master's thesis is written. Each student must pass a comprehensive exam on the basic graduate courses of his or her program.

**The Doctor of Philosophy Degree.** Admission to the Ph.D. program is granted only to students with superior records in their previous graduate or undergraduate study. A minimum of 90 semester credit hours of graduate credit beyond the bachelor's degree is required for the Ph.D. degree. This may include a maximum of 24 hours credit for the thesis. Each student has an individual doctoral committee which advises the student in the formulation of an approved plan of study for the degree. Candidates for the Ph.D. in mathematics must demonstrate, by examination, a reading knowledge of one foreign language, usually French, German or Russian.

The most important requirement for the Ph.D. degree is the preparation of an acceptable thesis. This thesis must demonstrate the candidate's ability to do independent, original work in mathematics.

**The Doctor of Education Degree.** The department supervises an Ed.D. program which is run in conjunction with the Department of Higher Education and Administration. Course requirements are similar to those for the Ph.D., except that 12 credit hours are required in educational theory. No language exam is required. An expository thesis can be accepted.

# Microbiology and Molecular Genetics

Professor and Head Robert V. Miller, Ph.D.

## Microbiology

Microbiology is the study of bacteria, viruses and fungi and their many relationships to humans, animals and plants. Microbiologists apply their knowledge to public health and sanitation, food production and preservation, industrial fermentations which produce chemicals, drugs, antibiotics, alcoholic beverages and various food products, prevention and cure of diseases of plants, animals and humans, biodegradation of toxic chemicals and other materials present in the environment, insect pathology, and other activities which seek to control microbes, to enhance their useful activities and prevent those which are harmful. Microbiology also is the basis for the exciting and expanding new field of biotechnology which endeavors to utilize living organisms to solve important problems in medicine, agriculture and environmental science.

Microbes are also studied as living in a great variety of environments and carrying out many of the processes found in higher organisms. They are thus interesting in their own right as model systems for the study of reactions which occur in higher organisms. As subjects for research in biochemical and molecular genetics, microbes have contributed most to the current knowledge of genetics at the molecular level (microbial systems are in the forefront of genetics engineering).

Opportunities for employment exist at all scholarly levels, in many local, state and national government agencies and in varied industries. The record for employment of microbiologists has been excellent for many years and with the increased interest in biotechnology, job prospects look even brighter for the future.

Students interested in careers in microbiology should have broad interests in the biological sciences and an aptitude for biology and chemistry. For some areas of specialization, an aptitude for mathematics and physics is also essential.

Departmental courses are designed to provide comprehensive training and the skills required for working with microorganisms, as well as a broad understanding of all aspects of microbial life. Many of the microbiology positions require graduate level studies. In addition to the B.S. degree, the department offers graduate studies leading to the M.S. and Ph.D. degrees in various areas of concentration including virology, microbial physiology, microbial genetics, microbial anatomy, immunology, and several applied areas.

## Cell and Molecular Biology

Cell and molecular biology is the study of how cellular components interact to promote life processes. It includes the study of how DNA and RNA are synthesized, how genes are expressed to allow differentiation of a single-celled egg into a complex multicellular organism. Cell and molecular biologists study protein synthesis, cell ultrastructure, organelle structure and function, enzymology, and the collection of concepts and procedures commonly known as "biotechnology" or "genetic engineering."

With the advent of modern molecular biology, studies of the fundamental processes of living cells have taken dramatic strides. The cell and molecular biology major at Oklahoma State University has been designed to allow students to acquire training in a multidisciplinary atmosphere that prepares them for employment in the rapidly growing field of biotechnology. Students following this avenue of study will be well prepared to continue toward the M.S. or Ph.D. degrees at this or other institutions or to find employment directly upon graduation.

Opportunities for employment exist at all scholarly levels, in many local, state and national government agencies and in varied industries. The record for employment of microbiologists has been excellent for many years and with the increased interest in biotechnology, employment opportunities look even brighter for the future. It is estimated that between 35,000 and 50,000 new jobs in biotechnology will be created during the next five years in the San Francisco area alone, and in the Boston area approximately 20,000 individuals trained in biotechnology will be in demand.

These fields require a solid knowledge of other sciences and students should take high school courses in mathematics, biology, chemistry and physics. Students should have broad interests in how living cells work and have aptitudes for biology and chemistry.

## Graduate Programs

Programs of course work and research leading to the degrees of Master of Science and Doctor of Philosophy are offered by the department in microbiology, cell, and molecular biology. Students may elect either microbiology or cell and molecular biology within the M.S. and Ph.D. program.

**Prerequisites.** Applicants for admission must have received the baccalaureate degree from an accredited college and must have completed a minimum of 30 semester credit hours in biological and physical sciences. The Aptitude Test portion of the Graduate Record Examination is required of all applicants. An applicant will not be accepted unless at least one member of the departmental graduate faculty agrees to act as the applicant's adviser at the M.S. level. A majority of the departmental graduate faculty must approve an applicant at the Ph.D. level.

**The Master of Science Degree.** In addition to the general requirements for the degree, the following departmental requirements must be met in attaining 30 credit hours with thesis. The plan of study must include six credit hours in MICRO 5000 and one credit hour in MICRO 5160.

All candidates for the M.S. degree are expected to attend and participate in all departmental seminars. A final oral examination covering the thesis is administered by the advisory committee.

**The Doctor of Philosophy Degree.** The study plan of a student entering the program with a bachelor's degree must include 30 credit hours in courses other than MICRO 5000 and MICRO 6000. Those entering with a master's degree must include 15 hours in courses other than MICRO 6000 which were not included in the master's study plan. Three hours of MICRO 5160 must be included.

Candidates for the Ph.D. degree must pass both a written and an oral qualifying examination. The final examination covering the dissertation research is given promptly after the candidate has given a public seminar on his or her research work.

## Medical Technology

The program in medical technology is designed to give the student the broad general education and the highly technical skills that are required for a successful career in this important medical science. The minimum requirement for the B.S. degree in medical technology is three years of university work and one year of clinical laboratory education

(internship) in an approved school of medical technology.

**Clinical Laboratory Education.** For the B.S. degree and certification, the students will, after three years of university work, complete one year of clinical laboratory education (internship) in a school of medical technology accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) and currently affiliated with Oklahoma State University. Schools of medical technology at the following hospitals are currently affiliated:

Comanche County Memorial Hospital,  
Lawton, Okla.

Muskogee General Hospital, Muskogee,  
Okla.

St. Anthony's Hospital, Oklahoma City,  
Okla.

St. Francis Hospital, Tulsa, Okla.

St. Mary's Hospital, Enid, Okla.

University Hospital, Oklahoma City, Okla.

Valley View Hospital, Ada, Okla.

Students entering their twelve months of internship must enroll in Medical Technology Clinical Laboratory (MTCL) courses for 12 credit hours during the equivalent fall and spring semesters and for six hours during the equivalent summer session, as follows: Fall-MTCL 4117, 4125; Spring-MTCL 4236, 4246; Summer-MTCL 4325, 4351. A grade of "I" will be given for the first two semesters of internship. Final letter grades will be awarded upon receipt of the final official transcript showing final letter grades in the six MTCL courses from the school of medical technology by the University medical technology coordinator. If a student fails to complete the entire 12-month internship, no course credit will be awarded. Students will pay the regular tuition for the credit hours in which they are enrolled, except that the facilities fees will be waived for the 30 hours of MTCL courses. Students who earn a B.S. degree prior to entering hospital internship will not be required to enroll and pay tuition during internship unless they desire to earn a second B.S. degree in medical technology.

**Preprofessional Courses.** NAACLS requires a minimum of 16 hours of chemistry, including organic and/or biochemistry and 16 hours of biology, including immunology. The University requirement for the B.S. degree in medical technology is as follows: two semesters of general chemistry; organic chemistry and biochemistry; immunology, genetics, anatomy and physiology, and two upper-division courses in microbiology; college algebra and computer science.

**Residence Requirements.** Although the MTCL courses are considered to be

resident credit, the student is required to complete additional resident requirements from regular on-campus courses as follows: 30 hours of resident courses, including 18 hours of upper-division courses listed under Major Requirements on the current degree requirement sheet in the *Undergraduate Programs and Requirements*.

**Grade-point Average Requirements.** Students, to be qualified for the B.S. degree, must earn a grade-point average of not less than 2.00 overall and 2.00 in upper-division major courses. Students with less than 2.80 overall grade-point average may find it difficult to gain acceptance to a school of medical technology under current conditions of competition.

**Applications and Admission to Internship.** Students should apply directly to one or more schools of medical technology about 10 months prior to the beginning date for internship. Approximately 70 percent of students applying for internship are accepted, depending upon the degree of competition in any particular year. The decision on acceptance of any applicant is entirely at the discretion of the hospital-based school of medical technology. Enrollment is limited by the size of the classes in the affiliated hospital-based programs. Satisfactory completion of the clinical laboratory education is required for eligibility to take a certifying examination. The B.S. degree in medical technology is not dependent on a passing grade on the certifying examination.

## Departments of Military Studies

**Coordinator Smith L. Holt, Ph.D.**

In agreement with the U.S. Air Force and the U.S. Army, OSU recognizes separate departments of Aerospace Studies and of Military Science as integral academic and administrative departments of the University. These two departments are administered within the framework of the College of Arts and Sciences. The two departments provide instruction under the basic and advanced Reserve Officers' Training Corps (ROTC) programs.

### Scholarships

Both the Army and Air Force ROTC offer full scholarships each year for students enrolling in the program. ROTC scholarships provide full payment of tuition, fees and books and \$150.00 per month subsistence allowance. Applica-

tions for four-year scholarships may be obtained through local high school principals or advisers and the ROTC departments. Information concerning three-year scholarships may be obtained by direct contact with the ROTC departments located on campus in Thatcher Hall.

## Degree Programs

A Bachelor of Science degree in aerospace studies or military science is offered in the College of Arts and Sciences upon completion of 127 semester credit hours. It combines ROTC training with the College's general education and degree requirements and the opportunity to develop strong programs in a wide variety of other fields. The curricula for these degrees prepare the student for further professional work and for duty with the Armed Forces.

## Flexibility

ROTC at OSU offers a variety of programs, giving the student considerable flexibility in charting a path to commissioning in the Army or the Air Force. Programs are designed so that individuals in all OSU colleges, departments and majors can tailor their academic/ROTC curriculum in order to attain commissioned status. Opportunities also exist in both Army and Air Force ROTC for the student to "test the water" early in his or her academic program by participating in basic familiarization courses. Those interested in learning more about ROTC at OSU, or in enrolling, are urged to contact the professor of aerospace studies or professor of military science in Thatcher Hall on campus.

## Aerospace Studies

**Professor of Aerospace Studies and  
Head Lt Col Joseph G. Sheridan,  
M.S.**

The basic, four-year Air Force ROTC program consists of one classroom hour and one leadership laboratory period per week during the freshman and sophomore years. Basic courses give students a thorough background in United States Air Force (USAF) structure and history, as well as drill and ceremony, military customs and courtesies, and wear of the uniform. No military obligation is incurred by non-scholarship cadets enrolling in the freshman- and sophomore-level courses. During the spring of the sophomore year, students compete for selection into the Professional Officer Corps (POC); those selected will attend either a four- or six week field training encampment during the summer between the

sophomore and junior years. For students getting a late start into the Air Force ROTC program, there are both two- and three-year programs that can lead to POC entrance and eventual commissioning.

Following completion of field training, students spend two years as POC cadets; academic courses consist of three classroom hours and one leadership laboratory per week, for three hours of credit per semester. Class work and laboratory involvement are designed to prepare the student for his or her future role as a leader in the U.S. Air Force. In addition, students are given the opportunity to gain practical leadership experience by holding various positions of responsibility in the Cadet Corps. POC cadets not on three- or four-year scholarships are eligible for partial scholarships of \$1000 per semester if they maintain at least a 2.35 semester GPA.

All students have the opportunity to participate in various corps-sponsored extracurricular activities during the year. These include visits to active Air Force installations to gain first-hand knowledge of the duties of junior Air Force officers; cadets are often taken on incentive flights in USAF aircraft. Cadets are also given the option to apply for numerous summer programs. These include expanded base visits, and even survival training, free-fall parachuting, and glider training programs in conjunction with the U.S. Air Force Academy.

Students who successfully complete the POC program are commissioned as second lieutenants in the United States Air Force, with a four-year obligation. Those who are selected for pilot or navigator training incur a six- to nine-year commitment.

## Military Science

**Professor of Military Science and Head LTC William J. McLean, M.B.A., M.A.**

Students desiring to expand the scope of their education, while preparing for a dynamic and rewarding career as an officer in the United States Army, active duty, National Guard, or Army Reserve, choose the Army Reserve Officer Training Corps program (ROTC) as an adjunct to their chosen field of study. With courses dealing in a wide range of subjects from leadership to tactics, taught both indoors and out, the Army ROTC program produces 8,000 second lieutenants each year across the nation.

The Army ROTC program consists of a basic course and an advanced course. Students desiring to see what the program is like may enroll in up to 10 hours

of military science with no commitment to the United States Army. During this basic course, emphasis is placed upon leadership, war gaming, individual skills, problem solving, rappelling, and land navigation. All lower-division ROTC courses are open to the entire University community regardless of year in school.

Students committing themselves to a commission in the United States Army are permitted to enroll in the Army ROTC advanced course upon completion of the basic course or equivalent. The advanced course consists of 12 hours of academic work taken during the junior and senior year. In addition, participation in a six-week summer camp is mandatory. The advanced course emphasizes further development of leadership skills, offensive and defensive tactics, physical conditioning, ethics, military law, professional and basic military knowledge and skills. Additionally, advanced course students are responsible for use of required military skills as they act as assistant instructors during laboratory periods, plan leadership laboratories, plan and conduct field training exercises and are responsible for coordinating and supervising departmental extracurricular activities.

All advanced course students must satisfy directed professional military education (PME) requirements prior to receiving a commission. The PME consists of two essential parts—a baccalaureate degree and at least one undergraduate course from each of the following fields of study: written communication, military history, human behavior, computer literacy, and math reasoning.

Students interested in the Department of Military Science are encouraged to visit with departmental faculty members at any time for further information concerning departmental course offerings and class sequence. A number of three-year scholarships are available through the department. Prior enrollment in military science is not a prerequisite for departmental scholarship application.

## Music

**Associate Professor and Head William L. Ballenger, M.A.**

The music program at OSU serves students who plan careers in the field of music as well as those who desire to participate in any element of a comprehensive music program. Professional instruction prepares students for careers in performance, teaching, or the music industry. The OSU undergraduate degrees are also excellent preparation for

graduate school and for church positions.

The student planning to major in music at the university level should consider his or her background carefully. It should include a strong interest in music during high school years and a talent for performance in vocal or instrumental music. Individual lessons, fundamental theory knowledge, and basic piano ability will also be helpful.

The music major may choose from the following degrees: (1) Bachelor of Music (B.M.) in performance, (2) B.M. in instrumental/vocal music education, (3) B.M. with elective studies in business, and (4) Bachelor of Arts (B.A.) in music. In addition, the Bachelor of University Studies allows the student to combine an interest in music with another outside field.

The student majoring in a discipline other than music may participate with music majors in all ensembles (choirs, opera, orchestra, wind ensemble, marching band, concert band, jazz bands, and chamber groups) and courses, as well as individual lessons for academic credit.

An active scholarship program provides assistance to music majors as well as non-majors. Students are invited to write for audition information.

Faculty members, students and ensembles present over 100 concerts and recitals annually. The department also supports an active program of extension and outreach opportunities.

The Department of Music is accredited by the National Association of Schools of Music. Students wishing to major in music should contact the Department of Music to arrange for an entrance audition and interview.

## Philosophy

**Professor and Head Neil R. Luebke, Ph.D.**

Philosophy is an intellectual activity to be practiced and a subject matter to be studied. As an activity, philosophy seeks to analyze, evaluate, and often reformulate the ideas, principles and arguments by which experience is understood and explained and by which behavior is directed and justified. No area of experience or behavior—esthetic, political, religious, scientific or moral—is immune to philosophical consideration. The writings produced by great philosophers are worthy of study as models of thought and as artifacts of historical influence and cultural significance. In this latter role philosophy is historically related to the

development of every academic discipline.

Courses offered in philosophy fall into three general groups: broad introductory courses which cover a variety of topics, historical courses which proceed chronologically through a sequence of thinkers, and special topic or field courses. Some offerings combine the latter two characteristics. No undergraduate course is intended primarily for majors. The B.A. program in philosophy has been approved for offering at the University Center at Tulsa.

Students may pursue work in philosophy as part of their general education, as a support to their major area of concentration, as a minor, as a major leading to a B.A. degree, as a second major or in connection with a graduate program. Philosophy majors have an excellent educational base from which to pursue careers in teaching, the ministry, law, government service and private business of many sorts. They have available to them one of the most flexible programs offered at the University, for the minimum philosophy requirements include only two lower-division introductory courses, two upper-division historical survey courses and 21 hours of additional unspecified philosophy courses numbered 3000 or above, which permit up to 37 hours of related and elective study in other areas, in addition to General Education and other college requirements. A minor or a second major in philosophy will complement any other area of study. A philosophy minor requires 18 hours of unspecified philosophy courses, 12 of which must be numbered 3000 or above.

## Graduate Programs

The Department of Philosophy offers a Master of Arts degree in philosophy. Consult the "Master's Degree Programs" section of the "Graduate College" in the *Catalog* for general regulations and requirements relating to admission.

The Master of Arts degree will be especially valuable to persons interested in pursuing predoctoral studies in philosophy, religious studies, or some other area of the humanities; to persons who already possess an advanced degree and who wish to expand their field of professional competence; and to college graduates who wish to broaden their own educational horizons. The M.A. program in philosophy has been approved for offering at the University Center at Tulsa.

The degree may be earned through any one of three options: with thesis (usually eight three-credit-hour courses and a six-credit-hour thesis); with report (usually 10 three-credit-hour courses and a two-credit-hour report); and with neither

a thesis nor report (usually 12 three-credit-hour courses). Thus the thesis degree requires 30 hours, the report degree requires 32 hours, and the courses-only degree requires 36 hours.

Prerequisites for admission to the program are 24 semester credit hours (at least 18 at the upper-division level) in philosophy including courses in the history of ancient, medieval, and modern philosophy (PHILO 3113 and 3213 or equivalents) and a course in logic (PHILO 1313 or 4303 or equivalents). Students without these prerequisites, but otherwise admissible, may be granted "qualified" or "provisional" status until the prerequisites are satisfied.

All candidates for the Master of Arts in philosophy degree are required to pass a six-hour written examination on selected major Western philosophical works. This exam must be passed before a student will be allowed to begin work on either a thesis or the report and normally will be taken about two-thirds of the way through the required course work for the degree. In every case, this examination will be arranged, administered, and supervised by the three-person advisory committee appointed for, and in consultation with, each student during the student's second semester of enrollment. This committee will also be responsible for determining the student's plan of study, thesis or report topics, if any, and any other special requirements that may need to be fulfilled.

*Master of Arts in Philosophy, with thesis:*

1. 24 hours of course work in classes and seminars approved by the student's advisory committee.
2. Six hours of PHILO 5000, in which a well-reasoned, substantial piece of research on a narrowly defined topic will be written as a thesis.
3. An oral examination and defense of the thesis before the graduate faculty of the department.

*Master of Arts in Philosophy, with report*

1. 30 hours of course work in classes and seminars approved by the student's advisory committee.
2. Two hours of PHILO 5910, in which two research papers will be prepared. These papers typically will have their origin in graduate seminars taken as part of the plan of study.
3. An oral examination and defense of these reports will be required in a formal presentation to the departmental faculty.

*Master of Arts in Philosophy, without thesis or report*

36 hours of course work in classes and seminars approved by the student's advisory committee.

A student may also, in accordance with the policies of the Graduate College, select a graduate minor in connection with any of the three programs, thus permitting a concentration of work in broad areas such as social thought, cognitive science, or religion.

Under the auspices of the Department of Educational Administration and Higher Education (EAHED) and with the cooperation of the Department of Philosophy, a student can earn the degree of Doctor of Education in higher education with special emphasis in philosophy. General requirements concerning the Ed.D. in higher education are listed in the "Doctor of Education" and "Educational Administration and Higher Education" sections of the *Catalog*. The basic prerequisite is a significant background in philosophy (ordinarily at least 24 semester hours of upper-division and graduate-level work). Depending on the student's record, 40-60 credit hours of philosophy, excluding the dissertation, are normally required, in addition to specific EAHED courses.

Departmental acceptance is required for admission to the M.A. program and the Ed.D. program. Persons who meet the stated prerequisites for the M.A. degree are encouraged to apply directly to the Graduate College for admission. Applications will be forwarded to the department for evaluation and recommendation of admission status. Persons interested in the M.A. program but who do not meet the prerequisites should contact the head of the department prior to application. Application for admission to the Ed.D. program must be initiated through the Department of Educational Administration and Higher Education.

Students pursuing a master's or doctor's degree in another field may elect philosophy as a graduate minor. Selected courses and seminars in philosophy can broaden and complement work in such areas as economics, education, engineering, English, history, psychology, and sociology.

## Physics

**Regents Professor and Head Stephen W. S. McKeever, Ph.D.**

In today's technological society, professionals in many diverse fields need to possess critical skills of observation and quantitative evaluation. Increasingly, persons trained in physics can be found in career positions in finance, medicine, business and many other fields where analytical skills are now a necessity for competitive survival. The program in physics at OSU is aimed at developing

these skills in both experimental and theoretical settings. Curriculum plans are available for degrees in fundamental physics, or in applied programs that combine physics with biology, business, computer science, engineering, mathematics, premedicine, and others.

During the first two years, the physics program provides a basic, quantitative and intuitive understanding of the physical world, from the classical ideas of Newton and Maxwell to the modern relativistic and quantum laws of Einstein and Schrodinger. At the same time, mathematics and computer skills are developed in application to physical problems. After two years, a student in the physics program may elect to pursue more advanced courses in theoretical and experimental physics, leading to a B.S. degree in physics and graduate studies in physics, or a related field. Alternatively, the student may elect to replace certain upper-division physics courses with upper-division courses in one of the above mentioned fields, leading to a B.S. degree in applied physics.

Continued communication, beginning with the student's first semester in the Department of Physics, establishes a productive rapport between the physics major and his or her faculty adviser. A physics minor is also possible and the requirements can be obtained from the department head.

## Graduate Programs

**Prerequisites.** Thirty semester hours of physics beyond the elementary course work, and mathematics courses through advanced calculus and differential equations are required.

**The Master of Science Degree.** The requirements for the master's degree in physics include the successful completion of 30 semester credit hours beyond the B.S. and the submission of an acceptable thesis based on original and independent research. The following physics courses are required: PHYS 5113, 5313, 5413, 5453, 5613. In addition, nine semester credit hours of electives must be completed in physics, mathematics, or an allied field. These must be chosen in consultation with the student's adviser. For example, an advanced course in mathematics along with Solid State I and II in physics might be reasonable choices for someone interested in a materials specialization. For others, one or more courses from electrical engineering might be preferable. A maximum of six credit hours of PHYS 5000 may be applied toward the M.S. thesis. The student must successfully defend the thesis in an oral examination.

**The Doctor of Philosophy Degree.** Prior to the appointment of the advisory com-

mittee, as described in the "Graduate College" section of the *Catalog*, a comprehensive written examination must be taken. This examination will cover the content of the course work required up to and including the M.S. degree, and will be given once a year. It will be given in four parts of three hours each. The results of this examination will be included in a review by the Department of Physics to determine whether the student should be admitted to Ph.D. candidacy.

The following physics courses are required: PHYS 5213, 5313, 5413, 5453, 5613, 6313. Four additional PHYS prefix courses at the 5000 or 6000 level, including at least one course not in the student's specialization, must be completed. Additional courses reflecting the candidate's specialization may be required by the advisory committee. Ninety semester hours of credit beyond the bachelor's degree are required. A minimum of two-thirds of the graduate course credits must be in physics. No more than six credit hours of physics at the 4000 level can be counted toward graduate credit and no more than 12 total credit hours in all subjects at the 3000 or 4000 level can be counted toward graduate credit. Courses taken at another institution will be evaluated by a faculty committee to determine whether they satisfy any requirements.

The most important single requirement for the Ph.D. in physics is the presentation of an acceptable dissertation which represents original research work by the student and which demonstrates the student's ability to do independent study as well as to plan and carry out future research in his or her field.

## Political Science

**Associate Professor and Head William Parle, Ph.D.**

Political science is the study of politics, government and public policy at the local, state, national and international levels. It is concerned with struggles for power and the exercise of power in the form of institutions, laws and public policies.

Political science seeks to reveal the patterns of behavior associated with politics, to discern the decision-making process in government, to explain the functioning of political and governmental institutions, to appraise alternative public policies and to assess government's role in society. The principal fields of study in political science are political theory, public law, comparative politics, international relations, public administration,

public policy, and American political behavior. Students may receive the Bachelor of Arts or Bachelor of Science degree in political science with a concentration in any of the fields of study.

Political science graduates enjoy a variety of career opportunities—staff positions with international, federal, state and local government agencies; teaching positions in college and high school; policy analysis and research positions with governments, businesses, civic groups and foundations; positions in journalism, public relations, political consulting or lobbying; and, via law school, the legal profession.

## Graduate Programs

The Department of Political Science offers a program leading to the Master of Arts degree in political science. Candidates for the M.A. degree may choose from two plans. Plan A permits specialization in three areas of political science chosen from American politics, comparative politics, international relations, public administration, and public policy, or some other field of specialization offered under the faculty mentoring program. Plan B permits concentration in public administration and public policy. Both programs are designed to prepare men and women for future work in Ph.D. programs as well as for policy analysis, general administration and public management careers in government, the nonprofit sector, the private sector and research organizations.

**Admission Requirements.** Admission requirements include a 3.00 GPA, two letters of recommendation, and STAT 2013.

**Degree Requirements.** In addition to the general requirements of the Graduate College, requirements for the Master of Arts degree with a major in political science are listed below.

*Plan A:*

1. A minimum of 33 credit hours in political science or closely related courses, including three hours of methods; 18 hours of political science graduate seminars (seminars numbered 5000 or above); either a thesis (six hours) or a three-hour creative research paper; and additional graduate-credit courses in POLSC or closely related fields to complete the 33-hour requirement. Students offering a field from outside political science may use up to six hours of nonpolitical science seminar courses to complete their 18-hour seminar requirement.
2. Satisfactory completion of two-hour comprehensive exams administered in the last semester of the student's program, covering three of the five fields

(American, comparative, international, policy, public administration). One field offered under the faculty mentoring program or based on courses from outside political science may be substituted for examination purposes.

3. A minimum grade-point average of 3.00.

*Plan B:*

1. A minimum of 36 credit hours in political science or closely related courses which includes a three-course required theory component (nine hours), a two-course required methods component (six hours), a three-credit-hour required internship, a three-credit-hour required creative component (master's research paper) and 15 hours in an area of specialization.
2. Satisfactory completion of a four-hour comprehensive exam administered in the last semester of the student's program.
3. A minimum grade-point average of 3.00.

**Pre-law.** Many degrees are applicable. See "Arts and Sciences Special Academic Programs-Pre-law."

**Premed and Pre-vet.** Many degrees are applicable. See "Arts and Sciences Special Academic Programs-Preprofessional Programs in the Health Professions."

## Psychology

**Associate Professor and Head David G. Thomas, Ph.D.**

The student pursuing a B.A. or B.S. in psychology is provided with a background which can be of great value in dealing with the personal, social and vocational areas of his or her life. The course of study applies the scientific method to the study of the behavior of an individual and behavior between individuals. The understanding of such material can be directly related to functioning in a job or career.

A bachelor's degree in psychology is useful in a wide number of occupations in business, education and industry. The range of positions obtained by graduates covers almost all occupations requiring direct personal contact with other people. Some examples are supervision, training, sales, public relations and interviewing. Also included are positions with city, state and federal agencies, and in applied research. Although there is no licensure or certificate to teach psychology in the schools, it is possible to get a teaching certificate or licensure in social studies education with endorsement in psychology while pursuing a major in

psychology. Persons interested in such teaching should contact the Office of Teacher Education. (See "Teacher Education Programs" in the "College of Education" section of the *Catalog*.)

## Graduate Programs

Employment in the professional field of psychology requires a graduate degree. Psychologists with advanced degrees have exclusive claim to some professional positions.

The Department of Psychology offers two programs of study leading to the degree of Doctor of Philosophy, one in clinical psychology and one in experimental psychology. Students applying for the doctoral degree should have the following prerequisites: introductory psychology, quantitative psychology, physiological psychology, experimental psychology, history, and systems.

Students in the doctoral program first work toward a Master of Science degree. In addition to meeting the general requirements of the Graduate College, for completion of the Master of Science, students must also:

1. Complete four core courses and two semesters of quantitative psychology along with other course credits totaling 30 credit hours.
2. Complete a thesis project, supervised and reviewed by appropriate faculty members.

Following the completion of the first-year requirements, the student may be admitted to doctoral status in clinical psychology or experimental psychology.

## Religious Studies

**Associate Professor Richard C. Rohrs, Ph.D.**

Courses in religious studies are a vital part of a liberal arts education. The field involves the objective study of religious belief, literature and practice around the world. Opportunity is given for serious and objective study of these aspects in relation to major religions of past and present cultures. Special attention is given to the historical bases of world religions as well as to their effect upon present-day societies, in both the East and West. Courses are offered in several world religions, biblical studies, religious thought, and religion and culture.

Courses are open to all students without regard to personal views or affiliations. No attempt is made to promote a particular view. Emphasis is placed on the academic study of religion rather than

the practice of a particular form of religion. The undergraduate courses enable students to satisfy humanities requirements and also provide an excellent background for many types of graduate and professional programs.

## Sociology

**Associate Professor and Head Patricia A. Bell, Ph.D.**

Sociology is the scientific study of human society and social behavior. As such, sociologists study a broad array of social phenomena ranging from the dynamics of social interaction to the composition and workings of entire societies.

Many different points of view are represented in the areas of expertise of the departmental faculty. The diversity of the faculty is reflected in many different types of courses offered. Topics include community organization, criminology and corrections, gerontology, social problems and deviance, social ecology and population studies, social psychology, industry and work, and rural sociology. The department also offers courses in anthropology, race and ethnicity, and gender issues. The department emphasizes pure as well as applied research. Many undergraduate majors elect to have supervised work-related internship experiences in work settings of their choosing.

Course offerings in anthropology provide students with a basic introduction to concepts and principles of physical anthropology, archeology and cultural anthropology. Regular course offerings include an emphasis on North American Indian cultures and archaeology. Other courses deal with anthropological methods and theory.

The Department of Sociology offers B.A. and B.S. degrees in general sociology and applied sociology. The general sociology degree provides students the opportunity to obtain a strong liberal arts degree with a maximum number of electives, and provides a good base for pursuing a professional or graduate degree in sociology and in several other fields of study. The applied options provide practical experience for work in research and data analysis, the helping professions, and fields dealing with social problems.

## Graduate Programs

The Department of Sociology offers the Master of Science and Doctor of Philosophy degrees. Programs are designed to prepare students for appointments to the faculties of colleges and universities, to work in private industry and in social

service agencies, and for research positions in business and in government. The department offers concentrations in community organization, complex organizations, deviance and criminology, and social psychology. The department also offers a Master of Science degree with special emphasis in corrections.

The department offers employment to a limited number of graduate students as teaching assistants or as research assistants. These teaching and research experiences constitute an invaluable part of the student's professional preparation.

**Admission Requirements.** Students seeking admission to graduate programs in sociology must be accepted by the Graduate College and the departmental graduate committee prior to official admittance. A combination of several criteria are used to evaluate an applicant's suitability for full admission to either of the programs. These include grade-point average, Graduate Record Examination scores, and letters of recommendation. Conditional or probationary admittance is considered under specified circumstances. Details on admission criteria are provided in the departmental *Graduate Student Manual* that can be obtained by contacting the Department of Sociology or the director of graduate programs.

**Degree Requirements.** The M.S. in sociology requires a minimum of 30 hours of course work. For students pursuing a specialty area in corrections, a minimum of 33 hours is required. For students pursuing the Ph.D., a minimum of 90 semester credit hours beyond the baccalaureate, or 60 hours beyond the master's degree, is required. Each student is required to take nine hours of sociological theory, six hours of research methods, and nine hours of statistics. In addition to the 90 semester credit hour requirement beyond the baccalaureate degree, the doctoral candidate must satisfy either a foreign language or international studies component. Detailed information on each program is available by writing to the department and requesting a *Graduate Student Manual*.

## Speech Communication

**Associate Professor and Head Paul D. Harper, Ph.D.**

The Department of Speech Communication affords a variety of opportunities for students who wish to become involved in the excitement of a changing world. Not only does the department offer academic subjects leading to both un-

dergraduate and graduate degrees, but students are afforded an opportunity to gain practical experience in interpersonal and public communication.

In speech communication, students are prepared for positions in industry and business and are qualified to work with interpersonal communication problems. Graduate work in this area increases the student's career opportunities in the field of communication consulting. In addition, the department's concern with related areas, such as sociology, business and psychology, allows the admission of graduate students with undergraduate preparation in some of these fields.

### Graduate Programs

**Prerequisites.** To enter the program, the student should have a minimum of 12 semester credit hours of undergraduate courses in speech communication or the equivalent.

**Admission Requirements.** Applicants normally should have at least a "B" grade-point average at the undergraduate level and strong recommendations from those familiar with the student's previous academic background. Beyond that, the number of students admitted will depend on the number of places available in the program.

**Program Requirements.** The complexity of today's society requires an individual capable of solving a wide range of problems. In order to meet this need, the speech communication graduate program aims at producing: (1) individuals capable of fulfilling the role of a communication consultant or interventionist within governmental, business and industrial, public service, educational and community organizations; (2) individuals capable of using methods and procedures of the behavioral sciences in investigating and solving practical as well as theoretical problems in communication; (3) individuals with the background to pursue doctoral programs in communication; and (4) competent teachers of communication for two-year and four-year colleges as well as the common schools.

The student may earn the Master of Arts degree under one of the following plans:

Plan I-A minimum of 24 semester hours of speech communication courses and a thesis for which six credit hours is earned.

Plan II-A minimum of 30 semester hours, no fewer than 24 of which must be in speech communication, and a project for which two hours may be earned.

Plan III-A minimum of 36 semester hours, no fewer than 24 of which must be

in speech communication, with no thesis or project.

The plan that a student chooses must be approved by the graduate faculty of the department.

**Examinations.** Every student must pass a written and oral comprehensive examination. The student following Plan I or II must also pass an oral examination over his or her thesis and related materials.

## Statistics

**Professor and Head P. Larry Claypool, Ph.D.**

Statistics is the science of learning from data. It is concerned with the development of theory and with the application of that theory to the collection, analysis and interpretation of quantitative information.

Because statistics is important in many scholarly disciplines, a degree in statistics provides the opportunity to enter not only the statistics profession but also many other fields which make extensive use of statistics. The areas of application include agriculture, the biological sciences, engineering, the physical sciences, the social sciences, education, business and home economics, among others. Statistics also promises to be important in emerging endeavors such as pollution and environmental research, energy utilization and health-care administration.

Those who pursue the study of statistics should be interested in scientific inquiry and should have a good mathematical background. In addition it is desirable that they have a genuine interest in some other subject which uses statistics.

Careers in government, industry and education, involving the disciplines previously mentioned, are open to the statistics graduate. In government and industry a statistician usually serves as a researcher or as a consultant to research scientists and decision-makers. In education, of course, the teaching function is added to those of research and consultation. In almost all careers, the statistician uses the computer.

The Statistical Laboratory operates within the department to provide statistical consulting to researchers-both faculty and student-across the campus.

The Department of Statistics offers the B.S. and M.S. degrees to those interested in applications of statistics, and the Ph.D. degree to those who wish to make original contributions to the theory of statistics.

## Graduate Programs

**Admission Requirements.** It is necessary to have an undergraduate degree, not necessarily in statistics or mathematics, to begin a program of study toward the master's degree in statistics. In some instances, it may be advantageous to have an undergraduate degree in another field. However, the student should have acquired a good mathematical background as an undergraduate. This should be equivalent to the required mathematics courses in the bachelor's program (MATH 2145, 2155, 2233, 3013, 4013). Students admitted to the program with deficiencies will be required to remedy such deficiencies.

**The Master of Science Degree.** The Master of Science degree in statistics may be completed by following one of the three plans listed in the "Graduate College" section of the *Catalog*. Normally, the all-course work plan will be initiated at the suggestion of the faculty. Each student will be required to attain an introductory knowledge of some field of application outside of statistics, mathematics and computer science. This requirement may be satisfied by having taken a three-hour graduate course in an approved field of statistical application. Each student is required to have completed COMSC 2113 or to have demonstrated competence in a procedure-oriented language such as FORTRAN.

**The Doctor of Philosophy Degree.** The Ph.D. requires the completion of 90 hours beyond the B.S. degree. A maximum of 30 of these credit hours may be earned by research for the dissertation. Each student will be required to attain an introductory knowledge of some field of application which may be satisfied by taking two three-hour graduate courses outside the fields of statistics, mathematics and computing. Each student is required to have completed COMSC 2113 or to have demonstrated competence in a procedure-oriented language such as FORTRAN.

## Theater

Professor and Head Jerry L. Davis,  
Ph.D.

The program in theater provides course work and practical experience in all areas. The degree programs are broadly based with academic, humanistic and artistic approaches to the subject matter. Training typically involves not only the most obviously theatrical disciplines such as acting, but also extensive technical skills, literary and historical knowledge, artistic expression, and self-discipline.

Study of theater can lead to many careers besides those in the performing arts. Fields where theater study can be especially helpful include business management, sales, law, politics, teaching, counseling, ministerial professions, or any career area where self-awareness and effective personal communication are essential.

Ambitious seasons of varied productions offer practical experience for both majors and nonmajors. Students with a major interest in theater choose a Bachelor of Arts degree.

## Graduate Programs

The department offers work leading to the Master of Arts degree in speech. The enrollment in the program is typically small, allowing a great deal of individual contact with faculty members and considerable latitude in developing the plan of study.

Students are trained in all aspects of the discipline with the aim of producing graduates: (1) who will be effective teachers and artists in two- and four-year colleges as well as secondary schools; (2) who are artists and/or technicians highly qualified for professional positions; or (3) who have the appropriate background to pursue further study toward M.F.A. or Ph.D. degrees.

The Master of Arts degree may be achieved in accordance with any of the three plans described in the section "Master's Degree Programs" in the "Graduate College" section of the *Catalog*.

A limited number of teaching and technical assistantships are available to highly qualified students. Information and application forms may be obtained from the department head.

Undergraduate credentials should be referred to the department head for evaluation to assist advisement and to determine any possible deficiencies which will affect the admission status.

## Zoology

Professor and Head David Duvall,  
Ph.D.

The Department of Zoology offers B.S. degree programs in biological science, physiology, wildlife and fisheries ecology, and zoology.

The degree in biological science is available for students wishing to obtain a broad program encompassing all of the life sciences. By including appropriate course work, students can obtain licen-

sure to teach in the secondary schools. Requirements for admission to graduate school, as well as dental, medical and other health-related professional schools can be met through the biomedical option of the biological science degree.

The undergraduate degree in physiology also serves as preparation for graduate school or a medically-related professional school. The bachelor's degree in physiology requires participation in undergraduate seminars and upper-division course work in general biology, genetics, gross and microscopic anatomy, mammalian and cellular physiology, mathematics, pharmacology, physics, and chemistry.

The wildlife and fisheries ecology undergraduate program involves comprehensive study in the conservation of renewable natural resources, with an emphasis on the optimum balance between wild animal populations and habitat requirements. Courses in the wildlife and fisheries program fulfill the requirements for many other applied and professional careers in wildlife ecology, including preparation for graduate programs. Undergraduates majoring in wildlife and fisheries ecology may choose a degree emphasis from communications, fisheries, or management/research areas. In communications, biological training is combined with course work in journalism, social sciences and the uses of electronic media. Management/research emphasizes applied wildlife and fisheries ecology and offers excellent preparation for graduate study.

The B.S. degree curriculum in zoology is designed to provide a background in biology with specialization in that area of zoology in which the student wishes to focus. The B.S. degree requires courses in cell biology, ecology, evolution, genetics, and vertebrate and invertebrate zoology. To become a zoologist the student must also have a good foundation in the related fields of chemistry, physics, mathematics and botany. Zoology provides a background for graduate school, and for many applied and professional careers.

## Graduate Programs

**Programs of Study.** Programs of study leading to M.S. and Ph.D. degrees are offered in wildlife and fisheries ecology, zoology and zoology-physiology. The department emphasizes (1) wildlife and fisheries conservation, (2) environmental toxicology, and (3) ecology, evolution and behavior. Specializations of faculty include animal behavior, behavioral ecology, carcinogenesis, cellular physiology, cytogenetics, developmental biology, ecology, ecotoxicology, evolution, fisheries biology, herpetology, ichthyology,

limnology, mammalogy, membrane physiology, molecular systematics, parasitology, physiological ecology, reproductive endocrinology, teratology, and wildlife nutrition. The department includes the Water Quality Research Laboratory and the Cooperative Fish and Wildlife Research Unit.

Teaching and research assistantships and out-of-state tuition waivers are available to qualified students. Information and application forms may be obtained from the departmental office.

**Prerequisites.** Applicants must have completed a baccalaureate degree including 40 semester hours in biology and related areas and have completed the Graduate Record Examination including the advanced test in biology.

**The Master of Science Degree.** In addition to the general Graduate College requirements, students are required to show competence in either a reading knowledge of a foreign language or a relevant research technique such as statistics, mathematics, or computer science. Students must prepare research proposals and complete either a thesis or a report. For the thesis option, 30 credit hours are required; for the report option, 32 credit hours. The plan of study must include at least two credit hours in a graduate seminar.

**The Doctor of Philosophy Degree.** In addition to the general Graduate College requirements, students are required to show competence in either a reading knowledge of a foreign language or relevant research technique such as statistics, mathematics, or computer science. This requirement is in addition to the competence demonstrated for the M.S. degree. The plan of study must include 60 credit hours and at least four credit hours in a graduate seminar. A student must pass written and oral examinations, prepare a research proposal, and complete a dissertation based on original research worthy of publication.