

Department of Biological Sciences

Associate Professor T. Knight, Chair
Professors J. Jeffers, R. Wight
Associate Professor D. Brech
Assistant Professors D. Brooks, B. DeBusk, T. DeWitt,
S. Freeman, N. Hardman, F. Kucera, C. Morgan, J. Taylor

Biology (BIOL)

Associate Professor T. Knight, Director

The Department of Biology provides undergraduate instruction in the biological sciences to students seeking admission to graduate and professional schools; to students majoring in other disciplines who desire insight into biological principles; to students seeking certification as public school teachers; and to general, liberal arts students. The department seeks to serve students within the liberal arts tradition described in the University's mission statement.

Requirements for a major in Biology:

B.S. degree: BIOL 1014, 1024, 4001, at least twenty-one additional hours in the Department. A minor of at least twenty hours must be completed in another department in chemistry, computer science, mathematics or physics.

B.A. degree: BIOL 1014, 1024, at least sixteen additional hours in the Department including a minimum of twelve Junior-Senior hours.

Requirements for a teaching field in Biology: See page 110.

Requirements for a minor in Biology: BIOL 1014, 1024, at least ten additional hours in the Department including a minimum of six Junior-Senior hours. A split minor may not be taken in Biology.

1014. General Biology (Zoology).

A study of the animal kingdom from the standpoint of systematics with emphasis upon the progressive advances of tissue organization, physiology and reproductive adaptation, including a consideration of ecological principles and economic importance of the major animal groups. Three hours lecture and three hours laboratory. [WAC] **Fall, Spring.**

1024. General Biology (Botany).

A study of the plant kingdom from the stand point of systematics with emphasis upon the progressive advances of tissue organization, physiology and reproductive adaptation, including a consideration of ecological principles and economic importance of the major plant groups. Three hours lecture and three hours laboratory. **Fall, Spring.**

2014. Human Anatomy and Physiology I.

A study of the organization of the human body, its tissues and the structure and functional relationships in the integumentary, skeletal, muscular, and nervous systems. Prerequisite: Four hours of Biology. **Fall.**

¹ J.D. Patterson Professor of Biology

2024. Human Anatomy and Physiology II.

A continuation of BIOL 2014 concentrating on the cardiovascular, endocrine, respiratory, digestive, excretory and reproductive systems. Prerequisite: Four hours of Biology. **Spring.**

2034. Genetics.

This course is a study of the basic principles, theories and mechanisms of heredity. It will address the tenets of transmission genetics, population genetics, and quantitative genetics. The laboratory provides an opportunity for hands-on demonstrations of the principles of genetics mechanism, as well as molecular techniques for studying DNA. Three hours lecture and three hours laboratory. Prerequisites: MATH 1003 and four hours of Biology. **Fall of odd-numbered years.**

3014. Microbiology.

A study of bacteria and other life forms from the standpoint of classification, morphology, physiology and environmental factors, and of the relation of bacteria to water, foods, industrial processes and diseases. Three hours lecture and three hours laboratory. Prerequisites: Four hours of Biology or CORE 2323; Eight hours of Chemistry; Junior standing. **Spring.**

3034. Ecology.

A study of principles governing the relationships between plants, animals and their environment. Consideration is given to local aquatic and terrestrial communities. Lectures, laboratories and field trips. Prerequisites: BIOL 1014, 1024 and four hours of Chemistry. **Spring of odd-numbered years.**

3044. Cell Biology.

This course is designed to address some general and specific principles of cellular and molecular biology. It begins by looking at the evolution of the cell and then progresses to the chemistry, anatomy, and physiology of the organelles. Commonly used molecular techniques will be introduced in both lab and lecture, and recent research in the area of cell biology will be discussed. Prerequisites: twelve hours of biology and 8 hours of chemistry. **Fall.**

3064. Neuroscience.

An introduction to the biological substrate of behavior and experience, especially as expressed in neuroanatomy, neurophysiology and behavioral neuroscience. Prerequisite: CORE 2323 or BIOL 1014. Also listed as PSYC 3064. **Spring.**

3801-3894. Individual Study, Group Study, Research.

This course is offered to provide competent students an opportunity to do independent study and research. Prior to registration, a student is required to obtain approval from a professor in the department who consents to serve as faculty supervisor. Prerequisite: Permission of supervising faculty member and department chairman. **On Demand.**

4001. Experimental Research.

A course in lab or field research in biological science. Course may be taken only once for credit. Prerequisite: 12 hours of Chemistry; BIOL 1014, 1024 and 8 additional hours in Biology. **Fall, Spring.**

4014. Histology and Microtechniques.

Lecture and laboratory dealing with primary tissues of vertebrate animals. A practical course for laboratory technicians, pre-medical students, and other Biology students. Prerequisite: BIOL 2014. **Spring.**

4024. Developmental Biology.

A comparative study of the development of the vertebrate embryo. Cell division, gametogenesis, fertilization, cleavage, gastrulation and organ formation in the frog, chick and pig are studied. Lecture and laboratory. Prerequisites: BIOL 1014, 2014. **Fall of even-numbered years.**

4801-4894. Individual Study, Group Study, Research.

See BIOL 3801-3894 for course details and requirements. **On Demand.**

Communication Sciences and Disorders (CMDS)

Assistant Professor N. Hardman, Director

Requirements for a major in Communication Sciences and Disorders: CMDS 1013, 2023, 3003, 3013 or 3113, 3023, 3063, 4003, 4013, 4033, 4040.5, 4053, 4063, minimum of 2.5 hours of 4140.5-3; ENGL 3073 or BIOL 3064; SPCM 1003; eighteen hours in one related field, 6 of which must be Junior/Senior level. The requirement for a minor is waived.

Requirements for a minor in Communication Sciences and Disorders: CMDS 1013, 2023, 3003, 3023, 3063, 4053.

1013. Phonetics.

A study of the International Phonetic Alphabet and standard regional dialects. An analysis of speech sounds with an emphasis on phonetic transcription, pronunciation, and effective communication. **Spring.**

2023. Introduction to Communication Disorders.

The study of the development of speech in the child, etiology and principles of therapy of speech disorders, including the areas of articulation, language, voice and fluency. **Fall.**

3003. Clinical Management.

Clinical procedures for working in various practicum settings, using diagnostic and therapeutic techniques, writing behavioral objectives, observations and procedures for report writing. Prerequisite: CMDS 2023 or consent of instructor. **Fall.**

3013. Voice Disorders.

Study of normal voice function and voice pathologies including evaluation techniques and specific remediation procedures for patients with voice disorders. Prerequisite: CMDS 2023. [WAC]. **Fall of odd-numbered years.**

3023. Vocal Anatomy.

A study of the structure and function of the speaking mechanism. **Fall of even-numbered years.**

3063. Language Development.

An introduction to linguistics as well as a study of developmental psycholinguistics as related to the acquisition of language and speech as well as normal phonological development. Prerequisite: CMDS 2023. **Fall of odd-numbered years.**

3073. Linguistics.

See ENGL 3073. **Spring of odd-numbered years.**

3113. Fluency Disorders.

Study of the nature and theories of stuttering, diagnosis, and treatment procedures. Prerequisite: CMDS 2023. [WAC]. **Spring of even-numbered years.**

3801-3893. Special Studies in Speech Pathology.

This course is offered to provide competent students an opportunity to do directed study or research. Prerequisite: Junior or Senior standing and consent of instructor. **On Demand.**

4003. Introduction to Audiology.

An introduction to the problems of the deaf and hearing impaired, the classification of hearing disorders and development of audiometry through pure tone techniques are considered. **Spring of odd-numbered years.**

4013. Diagnostic Methods.

Procedural guide for evaluation of speech and language disorders in children and adults, and effective usage of available testing materials. **Spring of odd-numbered years.**

4033. Fundamentals of Speech and Hearing Science.

Basic principles of acoustics related to speech and hearing are studied. Areas covered include basic sound, mathematical computation of sound intensity and pressure, and physiological aspects of acoustics. **Fall of even-numbered years.**

4040.5. Clinical Observation.

Supervised observation of evaluation and therapeutic management of a variety of communication disorders. Prerequisite: concurrent enrollment in, or completion of CMDS 2023, 3003, or consent of instructor. **Fall, Spring.**

4053. Language Disorders.

A study of the etiology, pathology and remediation of language disorders and articulation disorders in children and adults. Prerequisite: CMDS 2023. **Spring of even-numbered years.**

4063. Articulation and Phonological Disorders.

Identification, classification, analysis, and remediation of phonological and articulation disorders in children. Prerequisite: CMDS 2023. **Spring of even-numbered years.**

4140.5-3. Clinical Practicum.

Supervised participation in evaluation and therapeutic management of a variety of communication disorders. (May be repeated for credit.) Prerequisite: CMDS 4040.5 and an overall grade point average of 2.500 or consent of instructor. **Fall, Spring.**

Dietetics and Nutrition (DIET)

Assistant Professor S. Freeman, Director

The mission of the Didactic Program in Dietetics is to provide academic preparation for students in the field of nutrition and dietetics; to prepare students to function as dietetic professionals; to encourage students to think critically and creatively in problem solving; and to inspire a commitment to life-long learning and to Christian leadership and service in all areas of life.

The Dietetics and Nutrition curriculum is approved as a Didactic Dietetic Program (DPD) by the Commission on Accreditation/Approval for Dietetic Education of the American Dietetic Association. Mastery of course content in the Didactic Dietetic Program and successful completion of an accredited Dietetic Internship or an approved preprofessional practice program are required to take the registration examination for dietitians.

Requirements for the B.S. degree with a major in Dietetics and Nutrition meeting the prerequisites to enter a Dietetic Internship accredited by the American Dietetic Association: DIET 2003, 3043, 3053, 3083, 3093, 3203, 3213, 4014, 4023, 4033, 4043, 4051, 4053; BIOL 1014, 2024, 3014; CHEM 1024, 1034, 3203; MATH 1003; ECON 2023; INSY 1033; ENGL 3013; PSYC 1013 or SOCI 1003. A minor is not required.

2003. Foods.

Use of food science principles in food selection and preparation procedures. Introduction to food science research. **Fall, Spring.**

3043. Sports Nutrition.

Nutrient needs and food related issues in exercise for wellness and training for competitive athletes. **Fall.**

3053. Nutrition.

Functions of various nutrients and their interrelationships with emphasis on personal food habits and selection. Recommended prerequisite: CHEM 1024. **Fall, Spring.**

3083. Community and Life Cycle Nutrition.

Prevention and treatment of nutrition problems common to individuals, families, and communities. Includes survey of federal, state, and local nutrition programs for various age groups. Prerequisite: DIET 3053 recommended. **Fall.**

3093. Nutrition Assessment.

Methods used to assess the nutritional status of individuals and populations. Interpretation of anthropometric, biochemical, clinical and dietary data as a basis for recommending nutritional care. Prerequisite: DIET 3053. **Spring.**

3203. Nutrition Counseling and Education.

A study of nutrition counseling theory and methods, interviewing techniques, and nutrition education theory and techniques. The course will also focus on the development of nutrition education materials. Prerequisite: DIET 3093 or consent of instructor. **Spring.**

- 3213. Advanced Nutrition.**
Food nutrients, their digestion, absorption and metabolism. Methods of determining requirements and interrelationships of nutrients. [WAC]
Prerequisite: DIET 3053. **Spring.**
- 4014. Food Systems Management I.**
Menu planning; recipe development; food procurement; receiving and storage; food production; quality assurance; management of financial resources; equipment selection and layout; computer-assisted management and distribution. Prerequisite: DIET 2003. **Fall.**
- 4023. Food Systems Management II.**
Study of the principles of organization and management applied to institutional food service. Prerequisite: DIET 4014. **Spring.**
- 4033. Medical Nutrition Therapy I.**
An in-depth study of nutrition from the perspective of disease prevention and treatment, including patient interviewing, charting techniques, and medical terminology. Prerequisites: DIET 3093. **Fall.**
- 4043. Medical Nutrition Therapy II.**
A continuation of the study of nutrition in the prevention and treatment of disease. Prerequisite: DIET 4033. **Spring.**
- 4051. Senior Seminar in Dietetics.**
Procedures and application process for obtaining professional status through dietetic registration and licensure. Professional ethics and legal responsibilities. Strategies for integration of current issues into dietetic practice. Prerequisite: senior standing in dietetics and nutrition. **Fall.**
- 4053. Experimental Food Science.**
An advanced course consisting of a study of the composition and chemical properties of food. The course also includes a study of food problems and an analysis of current research in food materials and processes. Prerequisite: DIET 2003. **Spring.**
- 4093. Research in Dietetics.**
Individualized and directed research in the area of dietetics and nutrition. Prerequisite: Senior standing in dietetics and nutrition. **On Demand.**

Athletic Training Education Program (ATEP)

Assistant Professor, T. DeWitt, Director

**Approved Clinical Instructors K. Downing, C. DeRouen,
J. Bolin, C. Finney, K. Burris, J. Cates**

Requirements for a B.A. degree in Athletic Training with a double minor in Physical Education and Biology: ATEP 2001, 2011, 2062, 2083, 3001, 3011, 3021, 3031, 3043, 3053, 3061, 3071, 3082, 4003, 4053; PED 1002, 1112, 3023, 4043; HPER 3073; HED 1012, 2063; BIOL 1014, 2014, 2024 and 8 additional hours in Biology, at least six of which must be Junior-Senior hours; NSCI 4002; DIET 3053.

Requirements for B.A. degree in Athletic Training (second major in Biology): ATEP 2001, 2011, 2062, 2083, 3001, 3011, 3021, 3031, 3043, 3053, 3061, 3071, 3082, 4003, 4053; BIOL 1014, 2014, 2024, and 12 additional hours in Biology; NSCI 4002; DIET 3053; PED 3023, 4043; HED 1012.

Admission:

To be admitted into the Athletic Training Education Program (ATEP) at Ouachita, a student must meet ALL of the following criteria:

1. have a cumulative grade point average of 2.5 on a 4.0 scale from an institution of higher education (including transfer students) and;
2. have completed Human Anatomy I or II with the grade of a "C" or better and;
3. have completed ATEP 2001 Practicum in Athletic Training I or completed ATEP 2011 Practicum in Athletic Training II with a "B" or better and;
4. have on file in the program director's office three (3) letters of recommendation from the following:
 - a. a current university faculty member or a former university faculty member (from another institution) (university athletic training staff cannot be used);
 - b. a high school faculty member (where you attended high school);
 - c. an allied health care provider

A student who has not been accepted into the Athletic Training Education Program will not be allowed to take more than 9 hours in the ATEP curriculum.

Application deadlines:

January 15th for the spring semester of admission

September 15th for the fall semester of admission

Interview Process:

Interview for program admission will be given only after completion of the above criteria. This is a *competitive admission program*. Only those students meeting the criteria for admission will be selected for this program of study.

Attrition:

To remain in the ATEP, a student must maintain a cumulative GPA of 2.5 on a 4.0 scale and maintain a 2.75 in the ATEP core or major courses.

Failure to meet these standards will result in forfeiture of the position in the program. Readmission will be based upon the aforementioned criteria. Any student who forfeits their admission status is subject to readmission. Any student who forfeits their admission status more than two times is subject to permanent dismissal from the ATEP. Those students accepted into the ATEP must keep at least a "C" or better in the ATEP courses to be retained. Failure to meet this retention requirement may result in program dismissal.

2001. Practicum in Athletic Training I.

This course is an introductory course for a student interested in learning about athletic training. Opportunities are available to observe and gain practical experience working with a staff member in prevention, evaluation, treatment, management, and rehabilitation of athletic related injuries. A practicum will contain some of the specific competencies required in athletic training. **Fall.**

2011. Practicum in Athletic Training II.

The course follows the first practicum class. Additional learning opportunities are made available in athletic training. Specified modules are required for course content. Prerequisite: ATEP 2001. **Spring.**

2062. Techniques of Athletic Training.

This course is an introductory course designed to show students the art and science of athletic training. Emphasis is placed upon the various responsibilities of a certified athletic trainer. **Fall.**

2083. Introduction to Therapeutic Techniques.

This course is designed as an introduction to the use of specified techniques used in athletic training. Special emphasis is placed on understanding the use of each modality as well as special therapeutic exercise techniques. **Spring.**

3001. Practicum in Athletic Training III.

This practicum places the student intern in a more prominent role learning from an approved clinical instructor covering intercollegiate or interscholastic athletic events. Prerequisite: ATEP 2001, 2011, and formal acceptance into the ATEP. **Fall.**

3011. Practicum in Athletic Training IV.

This course is offered in the spring following successful completion of ATEP 3001. This is the second part of a two-semester clinical involvement in intercollegiate or interscholastic event coverage. The student intern is placed under the direct supervision of an approved clinical instructor. Prerequisite: ATEP 3001. **Spring.**

3021. Practicum in Athletic Training V.

This course involves extended involvement with an approved clinical instructor in comprehensive dealings in prevention, evaluation, treatment, management, and rehabilitation in athletic training. Prerequisite: ATEP 3011. **Fall.**

3031. Practicum in Athletic Training VI.

This course involves continuation of extended involvement with an approved clinical instructor in comprehensive dealings in prevention, evaluation, treatment, management, and rehabilitation in athletic training. Prerequisite: ATEP 3021. **Spring.**

3043. Lower Extremity Evaluation.

This course involves the evaluation techniques used to assess injuries to the lower extremity to include the spine. Writing SOAP notes and using special tests will be emphasized. Prerequisite: ATEP 2062. **Spring.**

3053. Upper Extremity Evaluation.

This course involves the evaluation techniques used to assess injuries to the upper extremity to include the head and face. Writing SOAP notes and using special tests will be emphasized. Prerequisite: BIO 2014 or BIO 2024. **Fall.**

3061. Allied Health Internship I.

This course allows the student the opportunity to work with another allied health organization as an intern. This internship will be a four- to five-week rotation in a clinical setting under the direct supervision of another allied health care professional. Prerequisite: ATEP 2001, 2011. **Fall.**

3071. Allied Health Internship II.

This course allows the student intern the opportunity to work with a second allied health organization as an intern. This internship will be a four- to five-week rotation in a clinical setting under the direct supervision of another allied health care professional. Prerequisite is ATEP 3061. **Spring.**

3082. Organization and Administration in Athletic Training.

This course takes the student through various competencies of athletic training including but not limited to the budget process, ordering of supplies, inventory and facility design. **Spring.**

4003. Advanced Therapeutic Techniques.

This course deals with the therapeutic application of modalities and pharmacological considerations in treating conditions associated with physical activity and sports. Prerequisite: ATEP 2083. **Fall.**

4053. Seminar in Athletic Training.

This course involves general medical problems in athletic training. Prerequisites: Senior standing and approval of course instructor. [WAC] **Spring.**