Biomedical and Health Sciences

Prospective students visit http://www.uab.edu/shp/home/degrees-certificates/grad-professional-degrees to obtain specific admissions requirements on how to apply to the Graduate School.

Degrees Offered: M.S.

Director: Mark Bevensee, PhD
Phone: (205) 934-7596
E-mail: bevensee@uab.edu; kcaruthe@uab.edu

Program Information

Program Mission

The mission of the Master's Degree in Biomedical and Health Sciences is to provide quality education to prepare a diverse student body for entry into graduate health professions programs including medicine, dentistry, optometry, physical therapy, occupational therapy, and physician assistant studies.

Admission Requirements

In addition to the general Graduate School admission requirements, applicants to the M.S. program must:

- Have a BS degree in biology, chemistry, biochemistry, kinesiology/exercise science, biomedical sciences, psychology, or a related degree from an accredited college or university,
- Have a minimum undergraduate GPA of 3.0 (A= 4.0), computed from all undergraduate credits,
- Have a minimum science GPA of 3.0 (A=4.0), computed from all undergraduate coursework in biology, chemistry, mathematics, and physical sciences,
- Submit scores of Medical College Admissions Test (MCAT), Optometry Admissions Test (OAT), Dental Admission Test (DAT), or Graduate Record Exam (GRE),
- Have completed college level coursework that includes 8 hours of general biology, 8 hours of general or organic chemistry, and 4 additional hours of biological sciences,
- Submit a personal statement of interest to the program,
- Submit three letters of recommendation,
- If foreign-educated, have a score of at least 550 for paper version (or 80 for Internet version; or 213 for computer version) on the TOEFL, submit a transcript evaluation from World Education Services (WES) at www.wes.org (http://www.wes.org)

If accepted, students must complete the UAB medical history questionnaire and physical, provide proof of required immunizations, and receive satisfactory screening by the UAB Medical Center Student Health Service before enrollment. A background check and drug screen will be required at program admission.

Persons with a Bachelor of Science degree may be eligible to register for courses as non-degree seeking graduate students before acceptance into the M.S. program at the discretion of the program co-directors. If a non-degree seeking graduate student meets the M.S. program admission requirements, up to 12 semester hours of approved non-degree graduate coursework may be accepted for the M.S. degree. Admission of a student to any course as a non-degree seeking student does not constitute or guarantee admission to the M.S. degree program. Non-degree seeking students will be eligible to meet with M.S. BHS advisors to discuss course selections and planning for future enrollment in either the M.S. BHS program or the graduate health professional school of their choice.

Essential Functions

Essential functions are physical abilities, mental abilities, skills, attitudes, and behaviors the students must evidence or perform at each stage of their education. The absence of an essential function would fundamentally alter a student’s ability to meet the program goals. The essential functions include commitment to learning, interpersonal skills, communication, time management, problem-solving, professionalism, responsibility, critical thinking, and stress management.

If you have a disability, but have not contacted Disability Support Services (DSS), please call (205) 934-4205 (voice) or (205) 934-4248 (TDD), or visit the DSS offices at 1701 9th Avenue South. Additional information is available at http://www.uab.edu/students/disability/

Accreditation and Certification

None required.

Additional Information

Entry Term: Summer Semester
Deadline for All Application Materials to be in the Graduate School Office: April 1
Entrance Tests: MCAT, OAT, DAT, or GRE and for international applications from non-English speaking countries, scores for the Test of English as a Foreign Language (TOEFL) and the Test of Written English (TWE)
Comments: Transcript evaluation by WES is required for applicants with foreign university degrees

Contact Information

For detailed information, contact the Department of Clinical and Diagnostic Sciences, Biomedical and Health Sciences Program, UAB School of Health Professions, SHPB 446, 1705 University Blvd., Birmingham, Alabama 35294-1212
Telephone: 205-934-7596
E-mail: AskCDS@uab.edu

Master of Science in Biomedical and Health Sciences

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHS 502 Molecules and Cells</td>
<td>4</td>
</tr>
<tr>
<td>BHS 503 Microbiology and Immunology</td>
<td>4</td>
</tr>
<tr>
<td>BHS 501 Seminar I</td>
<td>1</td>
</tr>
<tr>
<td>BHS 550 Integrated Systems I: Neuroendocrine</td>
<td>3</td>
</tr>
<tr>
<td>BHS 555 Integrated Systems II: Cardiopulmonary</td>
<td>3</td>
</tr>
<tr>
<td>BHS 560 Integrated Systems III: Genitourinary</td>
<td>2</td>
</tr>
</tbody>
</table>
Courses

BHS 501. Seminar I. 1 Hour.
The first of a three-course series to prepare students for application, admission, and success in professional school and the biomedical workforce. Topics will include study skills, interview skills, and test taking strategies.

BHS 502. Molecules and Cells. 4 Hours.
Chemical structures and functions of biomolecules and human cells. The disciplines of biochemistry, genetics, cell biology, and histology will be integrated to provide a framework for understanding normal and abnormal cellular states. Topics will include cellular physiology, metabolic pathways, inheritance, molecular genetics, and basic histology.

BHS 503. Microbiology and Immunology. 4 Hours.
Biology of viruses, bacteria, parasites, and fungi as well as the natural human responses to these pathogens. Innate and adaptive immunity will be explored in the context of pathogenic and non-pathogenic assault. Introduction to concepts in general pathophysiology including mechanisms of cell injury and repair, cell adaptation, and inflammation.

BHS 504. Introduction to Cell Biology. 3 Hours.
An introduction to cell biology and molecular genetics. Topics will include the structure and function of cell membranes, protein synthesis and degradation, and cell communication.

BHS 505. Integrated Systems I: Neuroendocrine. 3 Hours.
Integrated study of the nervous and endocrine body systems. The gross anatomy, histology, and physiology of each system will be examined through an integrated approach, which will include study of the interrelationships of these controlling body systems. Correlations to disease states and disease treatments will be stressed throughout.

BHS 506. Integrated Systems II: Cardiopulmonary. 3 Hours.
Integrated study of the cardiovascular and respiratory body systems. The gross anatomy, histology, and physiology of each system will be examined through an integrated approach, which will include study of the interrelationships of these systems and the gross anatomy of the thorax. Correlations to disease states and disease treatments will be stressed throughout.

BHS 507. Integrated Systems III: Genitourinary. 2 Hours.
Exploration and integration of the urinary and reproductive systems of the human body, including development and anatomical features and differences between males and females. Microanatomy of kidneys correlated with body fluid homeostasis and urine production, and clinical disorders of the urinary tract. Male and female reproductive tracts' structure, function and gametogenesis. Female menstrual cycle at the level of hormonal regulation, events at the ovary, and changes in the uterus. Microanatomy and physiology of pregnancy. Diseases associated with the genitourinary tracts.

BHS 508. Integrated Systems IV: Gastrointestinal. 2 Hours.
Integrated study of the gastrointestinal body system. The gross anatomy, histology, and physiology of each organ will be examined through an integrated approach, which will include study of the gross anatomy of the abdomen. Correlations to disease states and disease treatments will be stressed throughout.

BHS 509. Integrated Systems V: Musculoskeletal and Skin. 3 Hours.
Integrated study of the skeletal, muscular and integumentary body systems. The gross anatomy, histology, and physiology of each system will be examined through an integrated approach, which will include study of the interrelationships of these systems and the gross anatomy of the back and limbs. Correlations to disease states and disease treatments will be stressed throughout.

BHS 510. Clinical Application and Simulation. 2 Hours.
A capstone course to provoke critical thinking about the effects of disease at various levels of organization on multiple organ systems. The integration of content throughout the program will be stressed. Activities will include small-group case studies, simulation, and standardized patient interactions.

BHS 511. Introduction to Medical History Taking and Physical Examination. 1 Hour.
Introduction to the basics of medical history taking and physical examination. This course will provide students with the opportunity to engage in inquiry and problem solving in the biomedical sciences. Students may engage in a research project or literature review on a topic related to health and disease. A written report will be the culmination of these activities.

BHS 512. Anatomy and Physiology of the Thorax. 3 Hours.
An integrated study of the thoracic systems. Correlations to disease states and disease treatments will be stressed throughout.

BHS 513. Physiology of Exercise I. 1 Hour.
Exploration of current issues in Biomedical and Health Sciences.

BHS 514. Physiology of Exercise II. 1 Hour.
The second of a three-course series to prepare students for application, admission, and success in professional school and the biomedical workforce. Topics will include interpersonal skills and teamwork.

BHS 515. Physiology of Exercise III. 1 Hour.
The third of a three-course series to prepare students for application, admission, and success in professional school and the biomedical workforce. Topics will include ethical behavior.

BHS 516. 2 Hour seminar on professional writing and communication.

Total Hours 33