

# 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.
Co-Directors:	Mamie T. Coats, PhD and Michael Herr, PhD
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## Program Information

### Program Mission

The mission of the Master of Science degree program in Biomedical and Health Sciences is to provide coursework and experiences that can help you make the transition from undergraduate to medical, dental, optometry, physician assistant, physical therapy, occupational therapy, and other health science professional programs.

### Admission Requirements

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

- Have a minimum science GPA of 3.0 (A=4.0), computed from all coursework in biology, chemistry, mathematics, and physical 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 for the BHS program 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 the Hill Student Center, Suite 409, 1400 University Boulevard. 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:	March 1
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 455, 1716 9th Avenue South, Birmingham, Alabama 35294-1212

Telephone: 205-934-7596

E-mail: [AskCDS@uab.edu](mailto:AskCDS@uab.edu)

## Master of Science in Biomedical and Health Sciences

Requirements	Hours
BHS 501 Seminar I	1
BHS 502 Molecules and Cells	4
BHS 503 Microbiology and Immunology	4
BHS 550 Integrated Systems I: Neuroendocrine	3
BHS 555 Integrated Systems II: Cardiopulmonary	3
BHS 560 Integrated Systems III: Genitourinary	3
BHS 600 Integrated Systems IV: Gastrointestinal	2
BHS 601 Seminar II	1
BHS 602 Seminar III	1
BHS 605 Integrated Systems V: Musculoskeletal and Skin	3
BHS 610 Clinical Application and Simulation	1-2
BHS 690 Capstone: Integrating Basic and Clinical Sciences	4
Suggested Electives (must have 3 credit hours)	3
BT 605 Applications of Biochemistry in Biotechnology	
CDS 605 Survival Spanish for Health Professionals	
CHHS 602 Advanced Principles of Mental Health, Stress, & Well-being	

KIN 637	Physiology of Exercise I
PA 550	Introduction to Medical History Taking and Physical Examination

Any Graduate CDS-prefix elective course (500-600 level)

**Total Hours** 33-34

## 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 pathology including mechanisms of cell injury and repair, cell adaptation, and inflammation.

### **BHS 550. 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 a study of the interrelationships of these controlling body systems. Correlations to disease states and disease treatments will be stressed throughout.

### **BHS 555. 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 a 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 560. Integrated Systems III: Genitourinary. 3 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 600. 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 a study of the gross anatomy of the abdomen. Correlations to disease states and disease treatments will be stressed throughout.

### **BHS 601. Seminar 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 professionalism, cultural competence, and ethical behavior.

### **BHS 602. Seminar 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 interpersonal skills and teamwork.

### **BHS 605. 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 a 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 610. Clinical Application and Simulation. 1-2 Hour.**

Development of critical thinking skills regarding the effects of disease at various levels of organization on multiple organ systems. Activities will include small-group case studies and simulation.

### **BHS 675. Special Topics in Biomedical and Health Sciences. 1-4 Hour.**

Exploration of current issues in Biomedical and Health Sciences.

### **BHS 690. Capstone: Integrating Basic and Clinical Sciences. 1-4 Hour.**

Integration of knowledge from basic and clinical science courses to define and pose ethical resolutions to problems and clinical cases in the biomedical sciences.

### **BHS 698. Non-Thesis Research. 4 Hours.**

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.