



— ARKANSAS COLLEGES OF —
HEALTH EDUCATION

**Master of Science in Biomedicine
Student Handbook & Academic Catalog
2020 – 2021**

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August 2020

Arkansas Colleges of Health Education

Master of Science in Biomedicine

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This document is provided to students of the ACHE Master of Science in Biomedicine (MSB) as a guide to the interpretation and application of ACHE policies and procedures. This Handbook does not include all details of every policy, but rather seeks to cover the essential provisions of the policies and procedures of ACHE and is considered to cover ACHE policies.

The information contained within reflects the status of ACHE as of July 2020. ACHE reserves the right to delete any course or clinical site described in this handbook. ACHE also reserves the right to affect any changes in the curriculum, tuition/fees, administration, or any other phase of school activity without prior notice.

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Notice of Receipt and Disclaimer

As a Master of Science in Biomedicine (MSB) student at the Arkansas Colleges of Health Education (ACHE), I acknowledge that I have received access to an online copy of the ACHE Master of Science in Biomedicine Student Handbook & Academic Catalog and that it is my responsibility to read and comply with the policies within, as well as any revisions made at a later date. I understand that this document is located at www.acheedu.org/students. I further understand that it is my responsibility to read and comply with the policies within the ACHE Student Handbook and the ACHE Policy Manual which are also available online.

Information contained in this document is subject to change without prior notice and shall not constitute a legally binding contract. Changes will be distributed to students electronically and will become effective immediately unless otherwise specified.

Notice of anticipated changes will be given to the students in advance of implementation whenever possible. Each subsequent edition of this MSB Student Handbook & Academic Catalog supersedes all previous editions of the handbook titled the same and directives where they may be in conflict. Failure to read the handbook and to be familiar with the rules, policies, and procedures does not excuse the student from being required to comply with the provisions of any policy contained in the handbooks.

I further understand that:

- a. I will be assigned a campus e-mail address that will be the only mechanism by which I will receive all official notices from ACHE;
- b. It is my responsibility to check that e-mail address regularly;
- c. I am deemed to have notice of all information sent to my address.

I have been advised that some non-campus e-mail services are not compatible with the campus e-mail service, so attempts to forward e-mail to a non-campus address may be unsuccessful.

Any recommendations for additions, deletions, or changes must be submitted in writing to the Vice President of Academic Affairs of ACHE. Final approval is by the President and the CEO of the Arkansas Colleges of Health Education (ACHE).

By signing this form, I understand that it is my responsibility to read the ACHE MSB Student Handbook, regularly check my campus e-mail account, and be familiar with the policies established by ACHE.

Signature

Date

Print Full Legal Name

Student Number

Accreditation

The Arkansas Colleges of Health Education has been granted Candidate Status for Accreditation with the Higher Learning Commission.

The Higher Learning Commission is a regional accreditation agency recognized by the U. S. Department of Education. Questions concerning this status may be addressed to:

The Higher Learning Commission
230 South LaSalle Street, Suite 7-500
Chicago, IL 60604-1411
800-621-7440

The Arkansas Colleges of Health Education has been granted certification to offer the following degree programs by the Arkansas Higher Education Coordinating Board: Doctor of Osteopathic Medicine, Master of Science in Biomedicine, Doctor of Physical Therapy, and Doctor of Occupational Therapy, and Master of Physician Assistant Studies.

Arkansas Higher Education Coordinating Board certification does not constitute an endorsement of any institution or program. Such certification merely indicates that certain criteria have been met as required under the rules and regulations implementing institutional and program certification as defined in A.C.A. §6-61-301.

The American Osteopathic Association (AOA) and the Commission on Osteopathic College Accreditation (COCA) provides accrediting standards that require systematic review of the osteopathic medical education program. ARCOM was granted Pre-Accreditation (formerly called provisional accreditation) by COCA effective July 1, 2016.

Commission on Osteopathic College Accreditation
American Osteopathic Association
142 East Ontario Street
Chicago, IL 60611-2864
Telephone: [888.626.9262](tel:888.626.9262)
Email: predoc@osteopathic.org.

Pre-Accreditation is the highest accreditation a college of osteopathic medicine can achieve prior to graduating its first class.

Applicability of the Handbook

This Handbook DOES NOT replace the ACHE Student Handbook. If any specific conflicts are found, the ACHE Student Handbook shall supersede. Otherwise, this Handbook is to be used and followed as an Addendum to the ACHE Student Handbook. All MSB students of ACHE are bound by the ACHE Policy Manual, ACHE Student Handbook and this MSB Student Handbook and Academic Catalog.

Introduction

Arkansas Colleges of Health Education Mission Statement

To educate and train a diverse group of highly competent and compassionate healthcare professionals; to create health and research support facilities; and to provide healthy living environments to improve the lives of others.

The Master of Science in Biomedicine (MSB) is a thirty credit-hour graduate program administered through ACHE designed to fortify students in foundational basic science. Taught wholly by full-time faculty of ACHE, the MSB program has been designed to provide clinically-oriented, graduate-level training to students who wish to complement their academic standing toward a long-term goal of pursuing a career in a healthcare profession.

ACHE's goal is to graduate students and to prepare them to succeed in any graduate medical education program they decide to pursue. In addition, ACHE is committed to ensuring that its graduates have the foundation of knowledge, skills, and competencies that will enable them to meet the needs of the diversity of patients they will encounter in their professional careers. ACHE is committed to producing competent healthcare providers who are knowledgeable, skilled, professional, and ethical. ACHE is providing its students with the skills needed to remain lifelong learners, the desire to contribute to the advancement of healthcare knowledge, and the passion to be of service to their patients throughout their professional careers.

ACHE prepares to accomplish these goals by:

- Providing experienced and dedicated professionals and faculty who demonstrate excellence in their knowledge, skill, professionalism, ethics in their personal conduct and dedication for the education of students, to serve as the educators, mentors, and role models for our students.
- Providing the facilities and resources necessary to ensure that its students have access and opportunity to acquire a state-of-the-art education in a positive learning environment.
- Providing the resources and support for research and scholarly activity that aligns the needs of our communities, students, and faculty.

Requirements for Admission

To be considered for admission into the Master of Science, Biomedicine (MSB) program, an applicant must meet all requirements for admission to the satisfaction of the admissions committee.

Please refer to the ACHE Policy Manual for the [MSB Admissions Policy](#).

Please see [ACHE Student Handbook](#) for Technical Standards.

Tuition, Fees and Deposits

Average Annual Tuition for 2019-2020	\$30,000.00*
<i>*All students who matriculate this academic year receive a \$25,000 tuition discount</i>	
Acceptance Fee/Tuition Deposit (non-refundable)	\$500.00
Annual Fees:	
Technology Fee (Supports the COM's technology infrastructure including licensing, maintenance, and operations of the campus technology systems)	\$750.00
Administrative Fee (Laboratory and Graduation Fees)	\$750.00
Student Activity Fee (Includes club funding, various OSA activities and events)	\$500.00
Student Health Fee (Full access to ACHE Fit Lab and Wellness Center)	\$300.00
Student Wellness Fee (Includes annual flu shot, if not covered by student insurance, mental health resources, record keeping and disability insurance)	\$200.00
Parking/Auto Registration Fee	\$50.00

ACADEMIC POLICIES AND REGULATIONS

Non-Academic Grievances

Students wishing to report non-academic grievances related to issues of harassment or discrimination may file such report with the MSB Program Director or the ACHE Senior Assistant Dean of Student Affairs at any time during the semester when the grievance arose. Full details of reporting process are described in the ACHE Student Handbook.

Please refer to the ACHE Policy Manual for the [Sexual Harassment and Sexual Misconduct Policy](#), [Student Misconduct Policy](#) and the [Non-Academic Appeals Policy](#)

Student Academic Grievances and Appeals

An individual concern that is academic in nature should be first discussed with the immediate instructor and must be done in a professional manner within three business days. If a resolution cannot be reached, and the student wants to challenge a grade assignment or course grade, the student may seek guidance from the Office of Academic Affairs to determine if good cause exists to file a grade grievance or appeal.

Please refer to the ACHE Policy Manual for the [Academic Appeals Policy](#) and [Dismissal Final Appeal Policy](#).

Academic Grading, Promotion and Graduation Policies

Students are assessed all year regarding academic progress on the basis of their performance on assignments and written and practical examinations. Students must pass each course with a C (70%) or better in order to graduate with a Master of Biomedical Science degree. A student who fails or withdraws from a course cannot graduate in the academic year during which the failure or withdrawal occurs. In this circumstance the student may request readmission to the MSB program in the following academic year in order to retake or remediate the course.

Readmission will be subject to approval by the MSB Program Director. Up to two (2) courses may be retaken in this manner. Failure or withdrawal from the repeated course will result in dismissal from the MSB program without provision for readmission. Un-remediated failure of two courses will result in dismissal from the MSB program without provision for readmission.

Students who repeat a course will retain the F or W for the first course attempt and will receive a separate grade for the second attempt. Students taking less than a full 15 credit hour semester for the purpose of repeating a course(s) will be charged tuition at 50% the cost of regular full-time tuition for the semester(s) in which the course(s) are retaken.

All courses in the MSB program curriculum must be completed within two academic years in order to graduate, unless a leave of absence (LOA) is granted. A LOA for medical or compassionate reasons must be requested of the MSB Program Director in writing. In such case, the MSB Program Director will accept or deny the request. If the request is accepted, criteria for readmission will be provided to the student by the MSB Program Director within one (1) week of receipt of the LOA request.

Academic Standing

Each student's academic achievement is reviewed each semester, and the Office of the Registrar compiles a transcript. A copy of this transcript is available to the student, the Office of the Dean, the Associate Dean of Academic Affairs, the Student Progress Committee, the Office of Student Affairs, the Office of Administration and Finance, and to other individuals or facilities when authorized by the student or the Program Director. Enrolled students in good standing may download their own unofficial transcript at any time, free of charge, through the Student Portal.

The transcript includes:

- All grades earned
- Deficiencies (incompletes, failures, etc.)
- Semester GPA and cumulative GPA

Any student not in good academic standing may be prohibited from participating in any outreach, extracurricular, or other student activities, holding office in any ACHE organization, or being elected to any honorary or other school organizations. The student may be required to withdraw from all student activities, extracurricular activities, etc., by the Office of Student Affairs or the

Program Director. Failure to comply with this policy or directives will be considered a lack of professional responsibility, a breach of ethical practices and standards, and constitutes a basis for dismissal from ACHE.

Students who are not in good academic standing will be referred to the Director of Academic Support who will meet with each student to develop an individualized academic plan and arrange services such as tutoring. Those students who continue to be unable to make satisfactory progress in passing all courses and requirements will be referred to the Student Progress Committee (SPC). The SPC, in the process of determining eligibility for promotion or graduation, may consider the results of the student assessments, attendance, conduct and potential professional attributes.

Students are expected to maintain Good Academic Standing as they progress toward completing all degree requirements. Students will be evaluated on course grades, cumulative grade, academic standards, and professional standards. Academic standing is classified as follows:

- Good Academic Standing
- Academic Probation
- Academic Dismissal

Good Academic Standing - A student is considered to be in good academic standing only upon satisfactory completion of all required courses with a minimum cumulative overall grade of 70% (grade point average of 2.00). A student in good standing must have successfully completed all incomplete course work and must not be on academic or administrative probation, suspension, or in dismissal status.

Academic Probation - A student will be placed on academic probation when he or she has a cumulative overall grade less than 70% (GPA 2.0), any incomplete coursework, or Student Progress Committee imposed sanction. A student on this status will be prohibited from certain activities and officiating positions.

Academic Dismissal - A student will be dismissed when he or she fails to make satisfactory academic progress, fails to meet academic standards, or has course failures as described above.

MSB Student Progress Committee

Membership and Function: The MSB SPC will consist of six faculty members chosen by the MSP Program Director, from course directors in the MSB program for a given academic year. The Assistant (or Associate) Dean of Student Affairs shall serve as ex-officio member of the SPC. Recommendations of the SPC will be forwarded to the MSB Program Director for final decision.

The MSB SPC will function identically as in the enumerated functions in the ACHE Student Handbook.

Officers: The Chair will be appointed by the MSB Program Director

Member Terms: Staggered three (3) year terms

Meetings: As called by the Chair
At Risk Categories

Risk designations are determined after each exam throughout a semester. Both moderate and high-risk categories have varying levels of academic intervention activities required by the student. These interventions include: Mandatory attendance in certain academic sessions, advisor meetings, tutoring, and meetings with other faculty/staff as deemed appropriate by the Program Director. Exams taken after a risk designation may result in the student moving from one risk status to another.

- 1) **Low Academic Risk Category**-A student is considered to be at low academic risk when he or she has a cumulative average grade of at least 80% in all required course components.
- 2) **Moderate Academic Risk Category**-A student will be at moderate academic risk when he or she has a cumulative average grade between 70% and 80% in all required course components. A student who improves his or her cumulative average in each required component of a course to greater than 80% will be placed into the low risk category for that course. To ensure that the student has adequate time to commit to the academic endeavors required to be successful with the curriculum and the requirements of the professional degree he or she is seeking, a student on moderate academic risk status may be prohibited from certain extracurricular activities and student leadership positions. Students at moderate academic risk will have mandatory class attendance requirements and will be required to meet with their faculty advisor on schedule determined by the faculty advisor. Tutoring will be available to students at moderate academic risk. A student in this risk status will be continuously evaluated throughout the semester.
- 3) **High Academic Risk Category**-A student will be considered at high academic risk when he or she has a cumulative average grade in all required course components less than 70%. A student who improves his or her cumulative average in each required component of a course to 70% or greater will be placed into a lower academic risk category for that course. A student on this status must seek tutoring, attend all class sessions where the course failure occurred, and may not participate in certain activities and student leadership positions. Students in this status will be required to seek academic consultation and assistance if a second exam failure occurs in any course. Students' risk status will be reevaluated throughout the semester.

Satisfactory Academic Progress

In order for a student to be considered to be making satisfactory academic progress, the student must be in good academic standing, meet the requirements as set forth by the SPC, and demonstrate adequate professional potential in progress as determined by the faculty and administration.

Attendance

The attendance policy for individual courses, laboratory sections, small-group meetings, and other non-lecture encounters, if different from overall policy, will be specified in the course syllabus along with the requirements and/or penalties.

The attendance policy at any educational session where the presence or absence of the individual student potentially adversely affects the normal operation of the course, or the education of other students (group learning activities, anatomy) is **mandatory** unless excused in advance. While students should always notify their course director/coordinator, excused absences are coordinated through the Office of Student Affairs. Any student who misses, without approval, an assigned laboratory session with his or her group will receive a grade of zero for that session and will not be allowed to make it up.

ACHE does not grant excused absences retroactively, except when the absence occurred due to an emergency. ACHE grants excused absences (proactively) based on good cause. Students are not entitled to make up work, missed exams, etc. if they do not have an excused absence. Reasonably excused absences may include illness, death in the family, attendance at professional events, etc. In such cases, the student should contact the Assistant/Associate Dean for Academic Affairs via email as soon as possible, and within 48 hours upon return to school, provide a written explanation (via email) for the absence and any supporting documentation (i.e. doctor's note). Any absence for illness lasting more than three days requires a medical release to return to class. Any missed examination due to medical reasons will require documentation of the medical condition from a healthcare provider.

Any student who plans to be absent from a lecture or examination for planned events (e.g. ACHE travel, educational event) must contact the Office of Student Affairs in writing prior to the date of the absence. Upon return, the student must contact the Office of Student Affairs. The student is responsible for any assignments and lecture material missed during his or her absence. A student who misses a scheduled examination for such an event will be entitled to take the make-up examination.

Lectures at ACHE will be digitally recorded to supplement learning and for student review of information provided during the class. They are also available for review during the student's clinical education but are not a replacement for attendance in class. There is no guarantee that every lecture will be recorded or that the lecture recording will be of a quality that can be utilized for primary learning. Digitally recorded lectures are not to be considered as a substitute for contact hours

Students must notify the Office of Student Affairs, in writing regarding circumstances that may necessitate being absent three or more days from school. Students must contact the appropriate faculty upon his or her return.

Any student, who is absent from classes for five consecutive school days without notifying the Office of Student Affairs may be considered to have voluntarily withdrawn from ACHE.

Please refer to the ACHE Policy Manual for the [Class Attendance Policy](#) and the [Excused Absence for Religious Holy Days Policy](#).

Unexcused Absences

All unexcused absences will be reported to the SPC. If a student has more than two unexcused

absences, he or she will be referred to, and required to appear before, the SPC.

Student Grades

Grading for ACHE students in the MSB Program is based on a scale of 0 to 100%. ACHE requires a grade of 70% or above for passing of all courses, any grade below 70% is failing. The course director has discretion to assign an assessment score to a particular component as designated in the syllabus for that course.

Grading Scale		
MSB		Other Grades
A	90-100%	P – Pass
B	80-89.99%	F – Fail
C	70-79.99%	I – Incomplete
F	<70%	R – Repeat
		W - Withdrawal

Examinations and Reexamination

A student is expected to report to each examination at the scheduled time. Students who fail to attend a regularly scheduled exam may be allowed to take a make-up examination, if eligible, or may receive a grade of zero for that examination if not eligible for a make-up. No student in a written and/or computer-generated examination will be permitted to leave the examination before 30 minutes after the examination starting time.

Make-up Examination

A student who does not take an examination at its scheduled time due to a verified, excused absence, or any student who reports to take an examination after the scheduled starting time of the examination, may be eligible or required to take a make-up examination. Make-up examinations may be short answer, essay, verbal, or multiple-choice formats at the course director's discretion and will be treated the same as any other examination in terms of grading.

For any course in which more than one examination is administered, the student may take more than one make-up examination. Failure to take an examination as scheduled will result in failure of the course unless any of the above exceptions are applied. In those courses with only one examination, missing the examination will result in the student taking a make-up examination as stated above.

Make-up examinations will be given within 10 business days after the original examination on a day and time determined by the Office of Academic Affairs. The examination may be given outside of regular ACHE hours or days at their discretion.

If the student misses the make-up examination, he or she will receive a score of zero for that examination. The policies for examinations will apply to all make-up examinations. In the interim, the student grade will record as incomplete (“I”) for the course. Any exception to the

policies will be made solely at the Program Director's discretion.

All exceptions will be stated in the course syllabus. The student is responsible for reading each course syllabus and complying with the course requirements as stated in the syllabus.

Withdrawals and repeat coursework

The last day for withdrawal from the MSB program without a transcript notation will be one week after the start of classes in the fall semester. The last day to withdraw from the MSB with a grade of "W" on a course will be October 27. Withdrawals after October 27 will result in a grade of "WP" (withdrawal while passing) or WF (withdrawal while failing). A student who withdraws from a course or fails a course may continue throughout both semesters of the MSB but would not graduate. That student would have the option of returning the following academic year to retake a course (or courses) in which they received a WF or F the previous year. The first and second grades would be recorded on their transcripts. Courses could only be repeated once. Refer also to Academic Grading, Promotion and Graduation Policies.

Transcript Notations

Failing grades will be included in calculating the average numeric grade for that semester and the cumulative numeric grade average.

Academic Credit

Academic credit is granted for classes successfully completed in the MSB program. One credit hour is defined as a total of 12 lecture hours or a total of 24 laboratory hours.

Examinations and anticipated study outside of the assigned requirements are not included in the calculation of academic credit.

Example:

A course consists of 48 lecture hours.

Total Course Credit Hours = $48/12 = 4.0$ credit hours

A course consists of 72 lecture hours and 36 laboratory hours.

Total Course Credit Hours = $(72/12 = 6) + (36/24 = 1.5) = 7.5$ or 8.0 credit hours

Course credit hours are rounded up for 0.5 or above and rounded down for less than 0.5.

No student may graduate from ACHE without completing all of the requirements of the curriculum as established by the faculty, meeting all of the requirements for knowledge and completing the ACHE academic program of study.

Graduation Requirements

A student who has fulfilled all the academic requirements may be granted a Master of Science in Biomedicine provided the student has:

1. Satisfactorily completed all of the curriculum;
2. Completed all academic requirements;
3. Complied with all the curricular, legal, and financial requirements of ACHE;
4. Attended the compulsory portions of graduation week, including graduation rehearsal and the graduation ceremony.
5. Demonstrated the ethical, personal, and professional qualities deemed necessary by the ACHE faculty and gained the recommendation for graduation from the Student Progress Committee and the Faculty Council; and
6. Demonstrated compliance with the Code of Behavioral Conduct.

Awarding of the MSB Degree

Granting of the MSB degree requires that the ACHE faculty has concluded the student has attained sufficient maturity of thought, ethical, and professional proficiency and recommends to the Board of Trustees to award the degree.

Degrees are not awarded solely upon the completion of any prescribed number of courses, credits, or upon passing a prescribed number of examinations. Granting of the degree requires in addition, that the ACHE faculty has concluded the student has attained sufficient maturity of thought, and ethical and professional proficiency. Matriculation and enrollment does not guarantee the issuance of a degree without satisfactorily meeting the aforementioned curriculum and degree requirements.

The process of verification that a student meets all graduation requirements is as follows:

- 1) Office of Academic Affairs provides current listing of students in good standing to the Student Progress Committee;
- 2) The Student Progress Committee reports its findings to the Program Director;
- 3) The Program Director makes a recommendation of students to graduate to the Faculty Council;
- 4) The Faculty Council makes a recommendation of students to graduate to the VPAA of ACHE;
- 5) The VPAA of ACHE presents the recommendations to the President of ACHE;
- 6) The President of ACHE forwards to the Board of Trustees; and
- 7) The Board of Trustees has final granting authority.

Curriculum Schedule for ACHE Master of Science in Biomedicine

REQUIRED COURSES

Fall Semester 2020	Credit Hrs.	Contact Hrs. (20 weeks)
Fundamentals of the Anatomical Sciences*	8	78 Lecture/39 Lab
Medical Biochemistry	4	48 Lecture
Healthcare Foundations	3	36 Lecture
Totals	15	201
Spring Semester 2021		
Medical Cellular and Molecular Biology	5	60 Lecture
Medical Microbiology/Immunology	4	48 Lecture
Integrated Pathophysiology	3	36 Lecture
Medical Ethics and Professionalism	3	36 Lecture
Totals	15	180

*Taken with Medical Students

MSB COURSE DESCRIPTIONS

MSB 571 (COM 571): Fundamentals of the Anatomical Sciences (FAS)

Fall Semester 2020

8 credit hrs., 78 lectures and 39 Lab Sessions

Fundamentals of the Anatomical Sciences course consists of components from four preclinical courses: 1) Gross (macroscopic) Anatomy, 2) Histology (microscopic anatomy), 3) Embryology (early human development), and 4) Regional Neuroanatomy (e.g., telencephalon, metencephalon, and myelencephalon). The main goal of the course is to provide students with the foundation necessary to seamlessly transition into the systems-based, hybrid curriculum used at ARCOM. Large group sessions will utilize interactive learning strategies, shifting classroom time from passive conveyance of course material to deeper learning with opportunities for application of course concepts. The format of anatomy laboratory sessions will consist of small group learning and peer teaching in which teams actively learn about the human body via dissections within groups as well as among groups. Surface anatomy, medical imaging, and clinical correlations will be emphasized to provide meaningful context to students' learning of the anatomical sciences.

MSB 411: Medical Biochemistry (MB)

Fall Semester 2020

4 credit hrs., 48 lectures

The Medical Biochemistry (MB) course covers foundational concepts of biology, chemistry, biochemistry, molecular and cell biology as they relate to human health and disease. Specific content will include but may not be limited to: The structural basis of life, including essential organic chemical principles; nucleic acid, protein, lipid and carbohydrate structure and function; and enzymatic mechanisms whereby biological molecules are transformed in critical biochemical pathways. Bioenergetics will be presented from the standpoint of metabolic energy storage and utilization. Cell structure and function will be surveyed with emphasis on organelle function and basic mechanisms of cell signal transduction. The course will also introduce fundamental genetic principles.

MSB 421: Healthcare Foundations (HCF)

Fall Semester 2020

3 credit hrs., 36 lectures

Healthcare Foundations (HF) provides a basic understanding of the U.S. healthcare system, its funding and methods of practice; interprofessional health care team member roles and responsibilities; healthcare databases and knowledge management platforms. Basis of population health will be stressed with emphasis placed on social determinants throughout the lifespan. Content will consist of a mixture of didactic lectures, facilitated discussions of historical cases and current events, team-based learning (TBL) exercises and simulated experiences. All topics covered will provide principles presented on board exams and the

practice of medicine.

MSB 431: Medical Cellular & Molecular Biology (MCMB)

Spring Semester 2021

5 credit hrs., 60 lectures

This course provides a basic understanding of eukaryotic genetics and cell biology, with an emphasis on the molecular and cellular basis for the development, diagnosis, treatment, and inheritance of human disease. Specific content will include but may not be limited to: DNA replication, transcription and translation, protein homeostasis, organelle structure and function, cell signaling, cell cycle, cell motility, cell death and injury, stemness, cancer, therapeutics, and toxins. Special emphasis will be placed on mechanisms of established and experimental therapeutics, along with how genetics impact therapeutic decisions. Content will be derived from both textbooks and current literature, with the underlying goal of providing a foundational understanding for the evolving influence of genetics and cell biology on medicine.

MSB 451: Integrated Pathophysiology (IP)

Spring Semester 2021

3 credit hrs., 36 lectures

An introduction to fundamentals of physiology and human disease. This course will include study of basic human organ system physiology with an emphasis on the most common clinical pathologies that cause challenge to and deviations from homeostasis. The autonomic, musculoskeletal, cardiopulmonary, renal, gastrointestinal and neuroendocrine systems will be emphasized. Fundamentals of pharmacology will be discussed including pharmacodynamics and pharmacokinetics.

MSB 441: Medical Microbiology/Immunology (MMI)

Spring Semester 2021

4 credit hrs., 48 lectures

This course will provide a foundation in both mechanisms of host defense and the major pathogens that cause infectious disease. Broad topics in immunology that students can expect to discuss include the origin and function of various immune cells and tissues and the concerted actions of the innate and adaptive immune systems. The medical importance of how the immune system uniquely targets distinct threats and how it can also cause pathological inflammation and disease will be emphasized. Topics in microbiology that will be introduced include classification by taxonomy and the broad categories of human pathogens, including prokaryotes, viruses, fungi, protozoa, and helminths. The relative significance of each category of pathogen to human health will be emphasized. When appropriate, discussion will encompass factors that contribute to host susceptibility to select immune or infectious diseases and epidemiology of those diseases. Students will be

expected to present, participate in discussions at a high level, and demonstrate critical thinking skills.

MSB 461: Medical Ethics and Professionalism
Spring Semester 2021
3 credit hrs., 36 lectures

This is a capstone course, in which students will evaluate and discuss matters involving scientific integrity, professionalism, and biomedical ethics. Students will conduct comprehensive literature reviews, develop a brief written summary and make a presentation either in the form of a research poster or oral research seminar defending their stance on particular issues from gene therapy to the management of stress. In this course, students will learn to read and critically review peer-reviewed scientific literature, synthesize the current understanding of their chosen topic from multiple perspectives and present the information in a formalized manner.