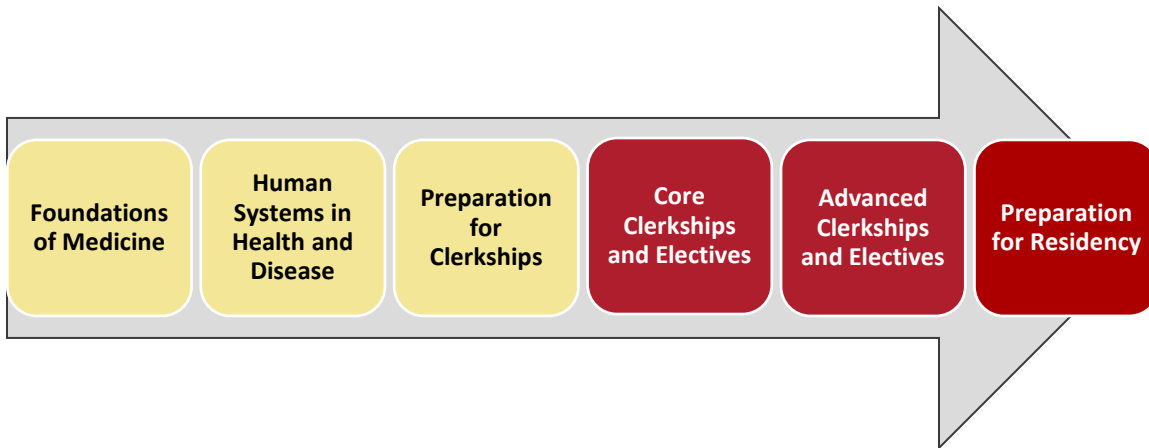


MEDICINE



BMS 6030 **Foundations of Medicine 2:** **Molecules to Mechanisms**

Florida State University
College of Medicine



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Overview

Course Goals

Foundations of Medicine 2: Molecules to Mechanisms complements **Foundations of Medicine 1: Organization and Structure** – to provide a foundation of core concepts, knowledge and vocabulary of basic, behavioral and clinical science as well as the fundamental skills of the physical exam and medical interviewing on which to build throughout the preclerkship curriculum. COM mission-based domains are underscored in specific objectives that address important issues in geriatric, rural and other underserved populations, such as the factors that impact medication dosage and effectiveness in elderly patients. Curricular themes such as cultural issues, ethics, and public health are developed as essential components in case studies – for example, attitudes, access, and consequences of dietary choices across the lifespan, beginning prior to conception and continuing through old age – and in clinical encounters with standardized patients. Students completing **Molecules to Mechanisms** will have a solid foundation of cellular and molecular principles in health and disease and awareness of their impact on individuals, families, society, and the health care system.

Course Objectives mapped to Education Program Objectives (EPO)

	Course Objectives	EPOs	Means of Assessment
1	Demonstrate the ability to organize and conduct a medical encounter using the biopsychosocial model of health and illness and patient-centeredness across the lifespan and patient-centered communication skills (e.g. open ended questions, silence, reflection) and associate communication strategies with particular tasks (e.g. using silence to elicit the patient’s view)	1.2, 2.5, 4.1	Observation by faculty, staff, and standardized patients
2	Demonstrate the ability to elicit an accurate, comprehensive medical history including chief complaint, history of present illness, past medical history, social history, and family history	1.2	Observation by faculty, staff, and standardized patients; OSCE
3	Demonstrate the ability to select and perform basic maneuvers of the physical exam.	1.2	Observation by faculty, staff, and standardized patients; OSCE
4	Demonstrate the ability to collect and organize information for clinical problem solving, concisely present an accurate, comprehensive medical history including chief complaint, history of present illness, past medical history, social history, and family history, and communicate diagnostic information and reasoning, intervention options, and a suggested plan of care with truthfulness, sensitivity and empathy.	2.3, 4.2, 4.6	Quizzes and exams; Observation by faculty
5	Describe the normal structure and function of the basic cell and tissue types of the body at the tissue, cellular, subcellular, and molecular levels including mechanisms of genetic transmission and gene expression, cell proliferation, energy production and use, and cellular metabolism, and correlate structures and mechanisms with human function	2.2	Quizzes and exams; Genetics problem set; Pedigree analysis assignment
6	Describe the mechanisms of cell communication including cell signaling, excitable membranes, receptor ligand binding, and second messenger cascades.	2.2	Quizzes and exams
7	Describe the mechanisms of cellular adaptation and response to injury and anticipate the outcomes of these changes	2.2	Quizzes and exams
8	Describe the normal structure and function of the autonomic nervous system (ANS)	2.2	Quizzes and exams
9	Describe the basic characteristics of microbial pathogens and the basic cellular mechanisms through which they impact normal cell structure and function and lead to clinical consequences.	2.2	Quizzes and exams

10	Describe the basic concepts of pharmacokinetics including factors that influence drug absorption, distribution, and excretion, including ionization of drugs.	2. 2	Quizzes and exams
11	Describe the basic concepts of pharmacodynamics including factors involved in dose response and the importance of these in adjusting the dosage to the patient.	2. 2	Quizzes and exams
12	Describe the changes in drug metabolism across the lifespan.	2. 2	Quizzes and exams
13	Describe steps used in testing a drug for FDA approval.	2.2, 2.3, 2.4	Quizzes and exams
14	Demonstrate an understanding of biostatistics concepts and their application in health care, the ability to interpret and appraise the validity of results and study design in the medical literature, and the use of biostatistics in evidence-based medicine.	2.4	Quizzes and exams
15	Identify social determinants of health and their relationship to health and wellness for underserved populations, and discuss the impact of patient and physician culture on health disparities	2.4, 2.5, 9.1	Quizzes and exams; participation in small group discussions and case-based learning
16	Engage in self-evaluation and reflection, including related to cultural, moral, and ethical issues encountered in patient care, to identify biases, develop self-awareness of knowledge, skill and emotional limitations, set learning and improvement goals, and engage in help-seeking behaviors.	3.1, 3.2, 4.7, 5.5, 8.1	Mid-semester self-evaluation; Observation by faculty and advisors
17	Demonstrate the habits of life-long learning – the identification of personal knowledge gaps and application of strategies to find and interpret information to address those gaps.	3.1, 3.2, 3.3	Observation by faculty
18	Apply the principles and methods of Evidence-Based Medicine to acquire, appraise, and assimilate new clinical information to improve patient care	3.6, 3.7, 3.8	Post-class learning checks
19	Demonstrate professional attitudes and behavior in all interactions with faculty, staff, peers, and patients, and in all activities, including: maintaining confidentiality for patients who participate in the course; demonstration of respect, empathy, compassion, responsiveness and concern regardless of the patient's problems or personal characteristics; integrity and adherence to ethical standards including informed consent; and completion of all required activities in a timely fashion	5.1, 5.3, 5.4, 5.5, 5.6	Observation by faculty, staff, standardized patients, and peers; Tracking of attendance, timeliness and preparation
20	Work effectively as part of a team.	4.3	Observation by faculty in small groups

FSU COM Education Program Objectives

1	PATIENT CARE: Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health
1.1	Perform all medical, diagnostic, and surgical procedures considered essential for the area of practice
1.2	Gather essential and accurate information about patients and their condition through history-taking, physical examination, and the use of laboratory data, imaging and other tests
1.3	Organize and prioritize responsibilities to provide care that is safe, effective, and efficient
1.4	Interpret laboratory data, imaging studies, and other tests required for the area of practice
1.5	Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
1.6	Develop and carry out patient management plans
1.7	Counsel and educate patients and their families to empower them to participate in their care, showing consideration for their perspective throughout treatment
1.8	Provide appropriate referral of patients including ensuring continuity of care throughout transitions between providers or settings, and following up on patient progress and outcomes
1.9	Provide health care services to patients, families, and communities aimed at preventing health problems or maintaining health

1.10	Provide appropriate role modeling
1.11	Perform supervisory responsibilities commensurate with one's roles, abilities, and qualifications
2	KNOWLEDGE FOR PRACTICE: Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care
2.1	Demonstrate an investigatory and analytic approach to clinical situations
2.2	Apply established and emerging bio-physical scientific principles fundamental to health care for patients and populations
2.3	Apply established and emerging principles of clinical sciences to diagnostic and therapeutic decision-making, clinical problem-solving, and other aspects of evidence-based health care
2.4	Apply principles of epidemiological sciences to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/health promotion efforts for patients and populations
2.5	Apply principles of social-behavioral sciences to provision of patient care, including assessment of the impact of psychosocial-cultural influences on health, disease, care-seeking, care-compliance, barriers to and attitudes toward care
2.6	Contribute to the creation, dissemination, application, and translation of new health care knowledge and practices
3	PRACTICE-BASED LEARNING AND IMPROVEMENT: Demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning
3.1	Identify strengths, deficiencies, and limits in one's knowledge and expertise
3.2	Set learning and improvement goals
3.3	Identify and perform learning activities that address one's gaps in knowledge, skills or attitudes
3.4	Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement
3.5	Incorporate feedback into daily practice
3.6	Locate, appraise, and assimilate evidence from scientific studies related to patients' health problems
3.7	Use information technology to optimize learning
3.8	Participate in the education of patients, families, students, trainees, peers and other health professionals
3.9	Use information technology to obtain and utilize information about individual patients, populations of patients being served or communities from which patients are drawn to improve care
3.10	Continually identify, analyze, and implement new knowledge, guidelines, standards, technologies, products, or services that have been demonstrated to improve outcomes
4	Interpersonal and Communication Skills: Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals
4.1	Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds
4.2	Communicate effectively with colleagues within one's profession or specialty, other health professionals, and health related agencies
4.3	Work effectively with others as a member or leader of a health care team or other professional group
4.4	Act in a consultative role to other health professionals
4.5	Maintain comprehensive, timely, and legible medical records
4.6	Demonstrate sensitivity, honesty, and compassion in difficult conversations about issues such as death, end-of-life issues, adverse events, bad news, disclosure of errors, and other sensitive topics
4.7	Demonstrate insight and understanding about emotions and human responses to emotions that allow one to develop and manage interpersonal interactions
5	PROFESSIONALISM: Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles
5.1	Demonstrate compassion, integrity, and respect for others
5.2	Demonstrate responsiveness to patient needs that supersedes self-interest
5.3	Demonstrate respect for patient privacy and autonomy
5.4	Demonstrate accountability to patients, society and the profession
5.5	Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation
5.6	Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations
6	SYSTEMS-BASED PRACTICE: Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care
6.1	Work effectively in various health care delivery settings and systems relevant to their clinical specialty
6.2	Coordinate patient care within the health care system relevant to their clinical specialty

6.3	Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care
6.4	Advocate for quality patient care and optimal patient care systems
6.5	Participate in identifying system errors and implementing potential systems solutions
6.6	Work in interprofessional teams to enhance patient safety and improve patient care quality
7	INTERPROFESSIONAL COLLABORATION: Demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient- and population-centered care
7.1	Work in cooperation with other professionals to establish and maintain a climate of respect, dignity, diversity, ethical integrity, and trust in order to enhance team functioning and serve the needs of patients, families, and populations
7.2	Utilize and enhance one's own expertise by understanding and engaging the unique and diverse knowledge, skills, and abilities of other professionals to enhance team performance and maximize the quality of patient care
7.3	Exchange relevant information effectively with patients, families, communities, and other health professionals in a respectful, responsive, and responsible manner, considering varied perspectives and ensuring common understanding of, agreement with, and adherence to care decisions for optimal outcomes
7.4	Participate in and engage other members of interprofessional patient care teams in the establishment, development, leadership, and continuous enhancement of the team in order to provide care that is safe, timely, efficient, effective, and equitable
8	PERSONAL AND PROFESSIONAL DEVELOPMENT: Demonstrate the qualities required to sustain lifelong personal and professional growth
8.1	Develop the ability to use self-awareness of knowledge, skills and emotional limitations to engage in appropriate help-seeking behaviors
8.2	Demonstrate healthy coping mechanisms to respond to stress
8.3	Manage conflict between personal and professional responsibilities
8.4	Practice flexibility and maturity in adjusting to change with the capacity to alter behavior
8.5	Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients
8.6	Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system
8.7	Demonstrate self-confidence that puts patients, families, and members of the health care team at ease
8.8	Recognize that ambiguity is part of clinical health care and respond by utilizing appropriate resources in dealing with uncertainty
9	FSU COM MISSION: Demonstrate responsiveness to community needs – especially elder, rural, minority and underserved populations
9.1	Describe the social determinants of health, and identify how they create opportunities for and barriers to wellness for underserved populations.
9.2	Identify community resources and the ways physicians can partner with them to improve individual and population health and address social determinants of health.
9.3	Discuss the process and components of community health assessment.
9.4	Illustrate how community health assessment is used to identify the health needs and issues of a given population and inform decision making to improve population health status.

Detailed learning objectives are provided for each session in the course.

Course Format

Foundations of Medicine 2: Molecules to Mechanisms provides a foundation in five fundamental areas of biomedicine (cell biology and molecular mechanisms, cell signaling and homeostatic control, microbiology, autonomic nervous system, and general principles of pharmacology) as well as important concepts of social and behavioral science, including biostatistics and epidemiology, social determinants of health, and health systems. Clinical skills for gathering information through the medical interview are added to the physical exam skills developed during **Foundations of Medicine 1: Organization and Structure**. The course emphasizes **engaged** and **active learning** through a variety of individual, interactive large group, and case-based small group learning activities as well as standardized patient encounters in the Clinical Learning Center. Formative on-line assessment materials emphasize the development of thinking skills through analysis of data and cases, including biostatistics and epidemiology, and NBME/USMLE-type questions. Students are expected to self-assess their learning needs and set goals to address them with the aid of faculty and their learning groups.

Large Group Sessions (some required, and attendance encouraged for all other sessions)

Formal lectures are limited in favor of interactive large group sessions. This learner-centered model uses the principles of active learning, where students consolidate their understanding and identify gaps in understanding as a session evolves, by answering questions and solving problems individually and through peer discussion, with immediate input of faculty expertise. Pre-class preparation primes students for learning with basic didactic material presented through **OnLineMedEd** including assigned videos with companion notes, formative questions, and challenge cases as well as additional interactive modules, self-assessment exercises, and textbook and journal readings. Interactive large group sessions apply and extend that knowledge through clinical case-based inquiry. **Success depends on student engagement, preparation, and trust in the safe environment we maintain** to encourage students to be curious and even to take intellectual risks. **The emphasis is on developing integrated basic and behavioral science concepts in a clinical context.** Whenever possible, real patients will be present to share their stories, demonstrate signs of their disease, and provide the real world context that goes beyond the classroom. Whenever patients are present, we ask that students dress professionally and close their phones and other mobile devices as demonstration of respect for these wonderful patients who are willing to help us learn.

Small Group Sessions (attendance required)

Small group exercises are case- and/or problem-oriented. Some sessions pattern thinking through **progressive disclosure**, others focus on **concept development** through guided engagement with data, while others employ the Jigsaw paradigm to focus on discovering **similarities and differences** of presentations or aspects of disease – the basis of differential diagnosis. Small group exercises are designed for **engaged and active learning** and emphasize reasoning, hypothesis formation, and hypothesis testing. The groups evaluate cases in terms of stated objectives and define additional learning objectives they will need to resolve. In Jigsaw exercises each small group (5-6) of students is assigned a case presentation to discuss and form an hypothesis. Typical questions to be resolved may include: *What explains the presentation? What may be the cause? What more do we need or want to know? How do we acquire and interpret needed information? What are the options/priorities for treatment and management?* Then the small groups re-mix such that each member of each new group “owns” a different case or aspect of a case, which he/she then “teaches” to the new group. In all small group exercises, **all members of the group share responsibility for analyzing and explaining the clinical presentations.** The value of small group exercises is not always the “answer,” but the **reasoning** behind it. Emphasis is placed on **making thinking transparent.** Basic and clinical science faculty will be present to ask helpful questions if your group is “stuck” and to encourage your curiosity. During small group exercises, you are free to use any resources (unless otherwise instructed). At the end of each small group exercise, you will be expected to review the complete cases and create a summary in your own words of the “take home” points of the cases considered as a group. **Summarizing and paraphrasing in your own words is a powerful learning tool.**

Clinical Learning Sessions (CLC) and Telemedicine (attendance required)

Throughout the course learners will develop their clinical skills and clinical reasoning during individual SP encounters *via* Telemedicine remote connection through the CLC. Learning to talk to the patient lays the foundation for learning the physical exam in the **Foundations of Medicine 1: Organization and Structure** course. Students will develop an understanding of the organization, content and performance of the medical interview. Emphasis is placed on communication skills using the biopsychosocial model of health and illness and patient-centeredness across the lifespan. Students experience the essential integration of basic, behavioral and clinical science knowledge and concepts in the successful patient encounter.

Professionalism

Medicine is a Profession, which means it entails unique responsibilities and obligations as well as unique privileges. “Professional identity formation” is an objective as important as learning the sounds and anatomy of the heart, but requires a different set of learning skills. Important among those are reflection, self- and peer assessment, deliberate practice, and learning for mastery (not grades).

Two essential Professional behaviors that will become a part of your everyday life are founded on respect for patients:

Confidentiality:

Patients — including Standardized Patients — deserve to be treated with respect. Respect for patients includes keeping all patient information confidential. Patient information may be shared with other health care professionals that have a legitimate, professional “need to know,” or with specific family members, friends, or others that have permission from the patient for access to the information.

Be especially conscious about discussions of patients in public places. Even when patient names are not used, the discussion may reveal the patient’s identity to others who overhear the discussion. Rather than risk a violation of patient confidentiality, discuss patients only in a private setting and only with individuals who have a legitimate need to know.

Be careful to keep all patient notes, reports and materials confidential. Patient records, should be returned to faculty, destroyed, or kept in a secure place.

Similarly, your classmates deserve to be treated with respect. Information learned about your classmates and their families while in class is considered confidential. You are not free to disclose this material to others without the specific consent of the person.

Violation of confidentiality may result in a [Report of Concern for Unprofessional Behavior](#) and may be referred to the Student Evaluation and Promotion Committee (SEPC). Egregious unprofessional behavior of any variety may result in suspension of the student, a failing grade for the course, and/or referral to SEPC.

Professional Attire:

Medical students, faculty and staff are all ambassadors and representatives of the College of Medicine and of the medical profession. Appearance and behavior should at all times demonstrate respect for the profession and for our patients. The needs of patients must always come first, and any barriers to meeting those needs (including attire, appearance and grooming) must be removed.

Professional attire should be worn in settings where students interact with people from outside the COM, and particularly when interacting with Standardized Patients (SPs) in the CLC, via Telemedicine, on a "house visit," or when in a preceptor's office or clinic, a hospital or nursing facility. Professional attire should also be worn when patients, guests, or visitors are present in large or small group sessions.

Specific standards for professional attire for [men](#) and for [women](#) are detailed at the end of this document and can always be found on the course

Course Content

Content sequence in Molecules to Mechanisms :

Throughout the course, students begin to develop their clinical skill set with a focus on the medical interview and taking and documenting a medical history. **Biostatistics, study design, evidence-based medicine, and critical reading of literature are taught throughout the course.**

Biochemistry, Cell Biology and Molecular Mechanisms

- Cell types and structure
- DNA, inheritance, and human genetics
- Cellular organelles, protein, glucose and fat metabolism and storage
- Patient-centered interviewing, genetic screening and counseling

Cell Signaling and Homeostatic Control

- Receptor – ligand interaction
- Homeostatic control of arterial blood pressure, water balance, and body temperature
- Cellular response to injury

Microbiology

- Bacterial, viral and fungal structure and replication
- Gram positive, Gram negative and Gram indeterminate bacteria
- Microbial detection methods
- Sterility

Autonomic Nervous System

- ANS subdivisions
- Neurotransmitters: cholinergics and adrenergics

General Principles of Pharmacology

- Pharmacokinetics, absorption, distribution, excretion, drug metabolism, changes with age
- Pharmacodynamics, agonists and antagonists, potency and efficacy, dose – response
- Drug development and evaluation
- Patient-centered interviewing, medication reconciliation, therapeutic adherence, patient-specific dosage

Required Materials (All required texts are available as ebooks through COM library [page](#))

[OnLineMedEd](#) – individual subscription provided by the COM

[Basic and Clinical Pharmacology](#) (Katzung)

[Bates Guide to Physical Examination and History Taking](#)

[Behavioral Science in Medicine](#) (Fadem)

[Histology: A Text and Atlas With Correlated Cell and Molecular Biology](#) (Ross)

[Medical Biochemistry: An Illustrated Review](#) (Panini)

[Physiology](#) (Costanzo)

[Resolving Ethical Dilemmas: A Guide for Clinicians](#) (Lo)

[Robbins and Cotran Pathologic Basis of Disease](#) (Kumar)

[Sherris Medical Microbiology](#) (Ryan)

[Smith's Patient-Centered Interviewing: An Evidence-Based Method](#) (Fortin)

[Thompson & Thompson Genetics in Medicine](#) (Nussbaum)

Additional required readings will be assigned from a variety of sources. These readings will be provided to you and posted on Canvas when possible.

Additional materials required for clinical sessions

- a. Clinical examination equipment: Each student must purchase and/or have available the following clinical examination equipment: stethoscope with diaphragm, bell and pediatric option, oto/ophthalmoscope, #128 and #512 tuning forks, penlight, reflex hammer, Rosenbaum eye chart and a sphygmomanometer with pediatric, adult, and large adult sized cuffs. Opportunities to purchase this equipment at a discount will be provided prior to orientation. Bring your examination equipment with you to each CLC session.
- b. Also bring the following to each session in the CLC:
 - A watch capable of measuring seconds
 - A pen for writing (blue or black ink)
 - The student's personal mobile device loaded with the appropriate medical software/applications.

Grading System

Assessment Methods

Examinations

There will be a mid-block assessment and a final assessment. The mid-block assessment contributes 40% and the final assessment 60% to the exam average. All or a portion of each assessment will be comprised of questions from the NBME (National Board of Medical Examiners) question bank. The questions on the customized NBME exams will be selected by course faculty as appropriate assessment of course objectives. Formative quizzes and other assessment exercises will be required throughout the course.

Written exams and quizzes

Multiple choice and other question formats are used to assess both content knowledge and application skill (ability to solve problems, demonstration of clinical reasoning, interpretation of images and laboratory results, etc.) on written exams. Exam questions may be drawn from material presented in any activity or assignment, from assigned readings and videos, and from CLC sessions, in addition to questions from the NBME question bank. **Exams are cumulative across the curriculum**, i.e., main concepts, content and skills from material presented in prior courses may be included in questions. Written questions may also be presented in context with standardized patient encounters during the examination.

Students must score a cumulative average of $\geq 70\%$ on the two summative exams (mid-block and final) to pass the written assessment component of the course. Students with a summative written exam average below 70% risk failing **Foundations of Medicine 2: Molecules to Mechanisms** and being referred to the Student Evaluation and Promotions Committee. A student who achieves an overall passing score ($\geq 70\%$) but has demonstrated a significant deficit in one or more content areas will be required to develop and complete a Performance Improvement Plan in consultation with the course directors. The purpose of the Plan is to assure the student has the requisite knowledge base to succeed in subsequent courses in the curriculum.

Quizzes

Throughout the course there will be weekly quizzes in class and on-line. These formative tools are "assessments for learning" that allow students to self-assess mastery of the material and their unique learning needs. Some quizzes may be assigned for completion over a weekend, at a time determined by the student. **All quizzes are mandatory and must be completed under the Honor Code, without collaboration with other students and without consulting resources** (e.g., textbooks, peers, notes, internet, etc.). Although quizzes are formative, students should give them the same effort as an exam. Quizzes are important opportunities for students to practice the self-assessment and responsibility for their own learning that are part of Professionalism and Practice Based Learning and Improvement. The results of the quizzes will be tracked as a measure of your progress and to help faculty provide students with guidance that will help them succeed in the curriculum.

Clinical skills exams

Formative and summative assessment of clinical skills occurs periodically throughout the pre-clerkship phase. OSCEs are skills-based examinations conducted in the CLC to assess the student's ability to demonstrate clinical skills and behaviors. OSCEs typically consist of several

“stations.” Each station will require the student to demonstrate one or more clinical skills/behaviors that will be assessed by a trained observer using established performance criteria for that assessment. The OSCE will provide students with feedback on their ability to perform an organized medical interview.

Students must score $\geq 80\%$ on the OSCE in order to pass the course in which the OSCE occurs. Students who do not achieve a score of 80% or higher on the OSCE must remediate these clinical skills. An OSCE remediation plan must be determined prior to the beginning of the next semester. An OSCE is part of the final assessment for **Foundations of Medicine 2: Molecules to Mechanisms**. It will emphasize the medical interview and history. Students scoring below 80% who are unable to successfully remediate these deficits will receive a grade of “Fail” for **Foundations of Medicine 2: Molecules to Mechanisms** and be referred to the Student Evaluation and Promotions Committee.

Grading for Medical Students

The FSU COM has adopted a pass/fail grading system which is used in the curriculum for the first and second years (See [Student Handbook](#)). To achieve a grade of Pass in BMS 6030 (**Foundations of Medicine 2: Molecules to Mechanisms**) a student must earn a **minimum of 181 points as described in the table below**, including a **minimum of 110 points from the assessment categories**. The final grade of a student who accumulates 181 total points but has not achieved the minimum required number of points in any non-assessment category will be at the discretion of the course directors following discussion and any required remedial action.

Category	Criteria for points	Points	MINIMUM REQUIRED	MAXIMUM POSSIBLE	Total possible
ASSESSMENTS (Minimum total points required = 110)					
End of course exam average – includes midblock and final	Overall score of $\geq 75\%$	100 points	90	100	100
	Overall score 70-74.9%	90 points			
	Score < 70%	0 points			
OSCE	Satisfactory performance	20 points	16	20	120
	Satisfactorily remediated performance	16 points			
	Failed remediation	0 points			
CLC formative assessment (weeks 3 and 5)	Satisfactory <u>or</u> Remediated	2 points each	4	4	124
NON-ASSESSMENT CATEGORIES (Minimum total points required = 71)					
Weekly quiz	On-time submission	1 point each	6	7	138
	Score $\geq 65\%$	1 point each	4	7	
CLC (T or W)	On-time arrival	1 point each	5	6	154
	Professionalism	1 point each	5	6	
	Evidence of preparation (non-assessment weeks)	1 point each	3	4	
CS Small group (T)	On-time arrival	1 point each	7	8	178
	Evidence of preparation	1 point each	7	8	
	Participation/Professionalism	1 point each	7	8	
Completion of OME lessons (Video + Questions)	50% by end of the week	1 point/ wk	4	16	194
	75% by end of the week	2 points/ wk			
Required afternoon attendance sessions: <ul style="list-style-type: none"> • EBM 1 6/8 • EBM 2 6/10 • Health equity 1 & 2 6/15, 7/16 • Virtual histology lab 6/16 • Bioethics 7/20 • Adrenergic review 7/21 	Attendance / On-time <i>Students with an excused absence receive the attendance point and must make up any associated assignment</i>	1 point each	5	7	201
Assignments					

Post-class learning checks <ul style="list-style-type: none"> • Biochemistry 6/4 • Microbiology 6/11 • Cell biology 6/18 • Medical errors 6/30 • Pharmacokinetics 7/1 • Physiology 7/15 	On time submission <i>Students with an excused absence have adjusted due date</i>	1 point each	4	6	207
	Evidence of effort	1 point each	4	6	213
Pharmacokinetics problem set	On-time submission	1 point	1	2	215
	Evidence of effort	1 point			
Genetics problem set	On-time submission	1 point	1	2	217
	Evidence of effort	1 point			
Professionalism	General professionalism (includes failure to attend a required session without an excused absence in advance)	-1 point/event	8	10	227

Notes:

1. An exam score is the combined results of the NBME and faculty-written components of the exam, with each question carrying equal weight. For example, 80% on a faculty written exam with 30 questions and 65% on an NBME component with 50 questions = an exam score of 70.6% $(0.8 \times 30 + 0.65 \times 50) / 80$. An end of course exam average between 70% and 74.9% (90 points) is considered a "marginal" pass. Students in this category are encouraged to consult the academic counselors in Student Affairs as well as the course faculty for advice on study and test-taking skills. An end of course exam average < 70% (0 points) will receive a grade of fail* (see Grading Policy below), which will require remediation or repetition of the course, as proposed by the course directors and determined by decision of the Student Evaluation and Promotion Committee.
2. A student whose performance is <70% (below passing) on any individual exam (see above for definition of exam score) during the course is required to
 - a. Attend the exam review,
 - b. Contact the course directors within 24 hours of that exam review, and
 - c. Meet with the course directors. Students may be asked to complete a Performance Improvement Program, the purpose of which is to assist the student in developing the skills and habits necessary to succeed in the curriculum as well as to address specific performance deficits.
3. Any quiz not completed by the Monday 8 AM deadline will earn 0 points.
4. Attendance and satisfactory participation are required in all small group sessions, all activities scheduled in the CLC, assigned labs, and other activities as determined by the course directors. Unexcused absence from an activity for which attendance is required may require remediation as determined by the course directors. Multiple unexcused absences from and/or late arrivals to required activities will be considered a Professionalism concern and may result in a [Report of Concern for Unprofessional Behavior](#) and referral of the student to the Student Evaluation and Promotions Committee in addition to loss of associated points..
5. Demonstration of the attitudes and behaviors of Medical Professionalism is expected at all times and in all aspects of the course, including adherence to the Honor Code when taking unproctored, on-line quizzes and observation of the dress code. Professionalism concerns may generate a [Report of Concern for Unprofessional Behavior](#).
6. A score $\geq 80\%$ on the **Foundations of Medicine 2: Molecules to Mechanisms** OSCE is required to pass the course. A score of $\geq 80\%$ on the original assessment earns 20 points. Students who score <80% but successfully remediate the performance prior to the last day of the course earn 16 points. Students who are unable to successfully remediate will earn 0 points and receive a grade of fail for **Foundations of Medicine 2: Molecules to Mechanisms** (see Grading Policy below), and will be referred to the Student Evaluation and Promotion Committee.
7. Satisfactory completion and timely submission of all assignments, as determined by the course directors.

Pre-clerkship course grading policy – Year 1:

Course written exam score:

All quizzes are mandatory and must be completed without collaboration or consulting resources (e.g., textbooks, peers, notes, websites, etc.).

Course grade:

If the course average is <70%, a grade of **IR** will be recorded.

- For an M1 course, a student may attempt to remediate the grade during the summer, if approved by the Student Evaluation and Promotion Committee (SEPC). Remediation will be comprised of a modified course, as proposed by the course directors, and passing performance ($\geq 70\%$) on a customized NBME exam. The grade will convert to **Pass** or **Fail** at the end of the remediation block.
- If a student has IR grades in 2 or more M1 courses and the SEPC decision recommends repeating year 1, the IR grades will convert to Fail.

In courses that include an OSCE:

- OSCE score $< 80\%$, if the course written exam score is Pass OR IR (see above) = **IR**

In courses that include Preceptorship (M1 Spring, M2 Fall)

- Unsatisfactory performance in Preceptorship, if the course written exam score is Pass OR IR = **IR**

Unsatisfactory Professionalism, if the course written exam score is Pass OR IR = **IR** or **Fail** depending on the nature of the Professionalism concern, as determined by the SEPC.

In any course in which the student's performance merits a grade of IR in 2 or more of the above categories (written exam score, OSCE, Preceptorship, Professionalism), the student will be referred to the SEPC, and a grade of Fail may be awarded, as determined by the SEPC.

Pre-clerkship course remediation policy – Year 1:

A student who has completed all the assessments and activities of a course and has not achieved a grade of Pass (see above), will be required to repeat the entire content of the course and demonstrate competence through an assessment which is consistent with the original course.

Remediation activities, including final testing, may involve other students.

Remediation should be comprised of a specific plan for learning and assessment such as the following:

- Review of course content available on Canvas
- Review of content through OnlineMedEd and Canvas, identifying topics to be covered each week
- Completion of weekly quizzes and practice test
- When a specific deficit is identified (e.g., pharmacology), completion of assignments determined by relevant content experts (e.g., paraphrasing, problem sets, case application, etc.)
- Weekly meetings with course directors and other faculty content experts as determined by the course directors to verify active engagement with content that is resulting in improved learning.
- A passing score ($> 70\%$) on a customized NBME exam (questions selected by the course directors and with a difficulty approximately equivalent to final exam average of the course) and additional faculty-written questions, if determined to be necessary by the course directors.

A student who scores $< 70\%$ on the final assessment or does not adequately engage in the remediation process (as monitored by the course directors) will receive a grade of Fail for the course.

Grading for BRIDGE Students (Graduate Program)

BRIDGE students will be held to the same requirements listed above, **with exception of participation in the Clinical Skills component of the course (i.e., a minimum of 127 points as described in the table below, including a minimum of 90 points from the assessment category)**. In addition, they will be assigned a letter grade (A, B+, B, B-, C or F) according to the scale below, **based on the average of all written exams**. Note, students in the BRIDGE program must achieve a grade of B- or better ($\geq 70\%$) in all required courses to remain in the [program](#). Grades of C may be remediated, at the discretion of the Course Directors in consultation with the Director of the Bridge Program and with the approval of the Bridge Committee.

Category	Criteria for points	Points	MINIMUM REQUIRED	MAXIMUM POSSIBLE	Total possible
ASSESSMENTS (Minimum total points required = 90)					
End of course exam average – includes midblock and final	Overall score of $\geq 75\%$	100 points	90	100	100
	Overall score 70-74.9%	90 points			
	Score $< 70\%$	0 points			
NON-ASSESSMENT CATEGORIES (Minimum total points required = 37)					
Weekly quiz	On-time submission	1 point each	6	7	114
	Score $\geq 65\%$	1 point each	4	7	

Completion of OME lessons (Video + Questions)	50% by end of the week	1 point/ wk	4	16	130
	75% by end of the week	2 points/ wk			
Required afternoon attendance sessions: <ul style="list-style-type: none"> EBM 1 6/8 EBM 2 6/10 Health equity 1 & 2 6/15, 7/16 Virtual histology lab 6/16 Bioethics 7/20 Adrenergic review 7/21 	Attendance / On-time <i>Students with an excused absence receive the attendance point and must make up any associated assignment</i>	1 point each	5	7	137
Assignments					
Post-class learning checks <ul style="list-style-type: none"> Biochemistry 6/4 Microbiology 6/11 Cell biology 6/18 Medical errors 6/30 Pharmacokinetics 7/1 Physiology 7/15 	On time submission <i>Students with an excused absence have adjusted due date</i>	1 point each	4	6	133
	Evidence of effort	1 point each	4	6	139
Pharmacokinetics problem set	On-time submission	1 point	1	2	141
	Evidence of effort	1 point			
Genetics problem set	On-time submission	1 point	1	2	143
	Evidence of effort	1 point			
Professionalism	General professionalism (includes failure to attend a required session without an excused absence in advance)	-1 point/event	8	10	153

Grading Scale for BRIDGE Students in Foundations of Medicine 2: Molecules to Mechanisms

- A = $\geq 87\%$
- B+ = 82 – 86.9%
- B = 76 – 81.9%
- B- = 70 – 75.9%
- C = 65 – 69.9%
- F = $< 65\%$

Course Evaluation

Students will have the opportunity to provide constructive feedback through online evaluation surveys. Evaluations will include both content and facilitation/teaching. Feedback is encouraged at all times on all components of the course and will assist the course directors in providing a timely continuous quality improvement.

Policies

Americans with Disabilities Act

Candidates for the M.D. degree must be able to fully and promptly perform the essential functions in each of the following categories: Observation, Communication, Motor, Intellectual, and Behavioral/Social. However, it is recognized that degrees of ability vary widely between individuals. Individuals are encouraged to discuss their disabilities with the College of Medicine's [Director of Student Counseling Services](#) and the FSU Office of Accessibility Services to determine whether they might be eligible to receive accommodations needed in order to train and function effectively as a physician. The Florida State University College of Medicine is committed to enabling its students by any reasonable means or accommodations to complete the course of study leading to the medical degree.

[The Office of Student Counseling Services](#)

Medical Science Research Building, 2301

Phone: (850) 645-8256 Fax: (850) 645-9452

Students with disabilities needing academic accommodation should:

- (1) register with and provide documentation to the Office of Accessibility Services; and
- (2) bring a letter to the instructor indicating the need for accommodation and what type.

Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Office of Accessibility Services has been provided.

This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the:

Office of Accessibility Services
874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
Voice: (850) 644-9566
TDD: (850) 644-8504

oas@fsu.edu

<https://dsst.fsu.edu/oas>

Academic Honor Code

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University." (Florida State University [Academic Honor Policy](#))

Attendance Policy

University Attendance Policy:

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

The College of Medicine has detailed attendance policies as they relate to each cohort and events that conflict with course schedules. See [FSUCOM Student Handbook](#) for details of attendance policy, notice of absences and remediation.

Unexcused absence from a scheduled examination or quiz may result in a score of zero (0 %) being assigned for that assessment. Unexcused absence from an activity for which attendance is required (for example, Small Group session) may be considered as an issue of Professionalism. Any unexcused absence may require completion of the Performance Improvement Plan (see Grading section, above).

Clinical Learning Center (CLC) Specific Absence Policy

CLC scheduled activities

Students with a legitimate reason to miss a scheduled session in the CLC must request an approved absence through Student Affairs through the [online link](#). Students with approved absences will be allowed to reschedule or participate in a make-up session. **Unapproved absences may not be rescheduled or made up.** Repeated unapproved absences may result in a failing grade for the course and a **Report of Concern for Unprofessional Behavior**.

If you know you will be absent from a scheduled CLC session, please complete the absence approval request at least two weeks in advance. For absences that are approved at least two weeks in advance, a change in CLC schedule assignment will be arranged.

One method for addressing a planned and approved absence is to identify a classmate willing to exchange scheduled sessions with you. In this situation, both students (the student with the approved absence and the willing classmate) should send a request via email to the [CLC Team](#) at least two weeks in advance. Students will be notified re: approval of these requests. Please note: Sending a request is NOT equivalent to receiving approval.

Unplanned but excusable absences from CLC sessions are absences due to circumstances *beyond the student's control*. Examples include student illness and/or family death. When such a situation occurs, please contact the [CLC Team](#) **as soon as possible**, to inform her that you will not be present. Then, submit an absence request to Student Affairs through the [online link](#). Student Affairs will classify the absence as excused or unexcused.

If the absence qualifies as an "excused" absence, the student must contact the [CLC Team](#) to develop a plan to make up the missed session. These sessions may require the presence of an SP and / or CLC faculty member. Any excused absence will not impact the student's grade.

Unexcused absences generally involve circumstances *within the student's control*. Examples of unexcused absences include the student who forgets about a scheduled CLC session, the student who skips the session to study, and/or any absence where an able student fails to contact Student Affairs and the [CLC Team](#) to inform them that the student will not be present for the session.

If the absence is unexcused, the clinical skills director will discuss the situation with the student. Any further unexcused absences will result in the notification of Student Affairs, a **Report of Concern for Unprofessional Behavior**, and referral of the student to the Student Evaluation and Promotions Committee. Students with unexcused absence(s) will still be responsible for the missed material in future OSCE's and written examinations.

Objective Structured Clinical Examination (OSCE)

If a student knows he/she will not be able to participate in the OSCE, he/she should complete and submit the appropriate forms to Student Affairs, and, if within 24 hours of the time he/she is scheduled for the OSCE, contact the [CLC Team](#). If the absence is excused by Student Affairs, the student will receive an "I" (incomplete) grade and be required to complete a make-up OSCE at a designated time after the course has ended.

Any excused absence—whether planned or unplanned—will not impact the student's grade.

Any absence that does not qualify as an excused absence per Student Affairs is an unexcused absence. These generally are due to circumstances within the student's control. Examples of unexcused absences include the student who forgets about an OSCE session, the student who skips an OSCE to study for an exam and/or any absence where an able student fails to follow the procedures above if they are not able to participate in the OSCE. **An unexcused absence will result in failure of both the OSCE and the course during which it occurs.**

Professional Attire

Professional attire consists of clothes consistent with community norms for physicians. Length and fit of all attire is to be in accordance with that acceptable for physicians in a professional healthcare environment; oversized, undersized, tight-fitting, seductive, and/or revealing clothing is not acceptable.

Unacceptable attire includes, but is not limited to, the following: jeans of any style or color, denim material or "denim look" material, sheer or see-through fabrics, strapless, low-necked or exposed chest clothing, midriff-baring clothes, backless clothing, spaghetti straps, cut-offs, tank tops, halter tops, crop tops, tube tops, sun dresses, crop pants, shorts, pedal pushers, hip hugger pants, stirrup pants, any item constructed mainly of spandex, sweat suits (sweat pants/sweat shirts) warm-up suits, overalls, hats, and any clothing that advertises.

Examples of professional attire in Tallahassee are: slacks or skirt and a collared shirt or blouse or sweater; conservative length dress (dress or skirt edge should rise no higher than 2" above the top of the knee-cap (patella) during all clinical care and training maneuvers including sit down patient-clinician conversations; dress or skirt should not be tight fitting)..

Ties may be either required or forbidden in some clinical situations.

Footwear may include dress or casual closed toe shoes (no sports shoes, no sandals, no open-toe footwear). Heels more than 3" in height are never appropriate in clinical settings.

Consult your supervisor to clarify expectations for student attire in any ambiguous or new situations.

Professional appearance: Long hair must be pulled back and secured. Facial hair must be neatly groomed. If possible, all tattoos should be covered by clothing. No visible body piercing except a single piercing in each ear. No large earrings or loose jewelry. Fingernails must be trimmed. If nail polish is worn, it should not be a distracting color. No strong perfume or other scented products. In compliance with OSHA regulations, closed-toed shoes are required in all clinical settings—including the CLC as well as the anatomy lab.

The established "norms" of certain clinical settings may modify these standards for professional attire, but any variations in professional attire must be approved by the student's supervisor. Consult your supervisor to clarify expectations for student attire in any ambiguous or new situations.

For curricular activities where guests or patients are not present: Unacceptable attire includes, but is not limited to, the following: sheer or see-through fabrics, strapless, low-necked or exposed chest clothing, midriff-baring clothes, backless clothing, spaghetti straps, cut-offs, tank tops, halter tops, crop tops, tube tops, or extremely short shorts.