Macromolecules and Metabolism (MM)

Course Directors: Dr. Jennifer Kohler and Dr. Andrew Lemoff

Grading:

- Final Exam: 50%
- Quiz: 20%
- Online Problem Sets (4): 6% each
- Active Learning Sessions (2): 2% each
- Completion of course evaluation: 2%

**A cumulative weighted score of ≥ 70% correct for allgraded activities will be counted as a passing grade. Students must also score at least a 70% on their final exam in order to pass this course.

Calendar:
8/5 to 8/30 (first 4 weeks of class)
Lecture: 9 am –12 pm most days
Problem sets due: 8/11, 8/14, 8/21, 8/28
Active Learning Sessions: 8/13, 8/19
One quiz: 8/16 (2 weeks in)
Final exam: 8/30 (4 weeks in)

Required activities: active learning sessions, quiz, problem sets, final.

Syllabi: The length of the syllabi varies based on the topics covered. Each syllabus provides learning objectives you can refer to test your understanding of the topic.

Textbook: As with other courses in medical school, there are no required textbooks; you will only be tested on material in the lectures/syllabus. However, some courses provide recommended texts. These are certainly not necessary, but you can refer to them if you want more background. For this course, the recommend texts are"MolecularBiology of the Cell" by Alberts et al., the 5th edition and"Biochemistry"by Berg, Tymoczko and Stryer, the 6th edition. Important note reiterated: You do NOT need to use textbooks if you do not learn effectively from them.

Additional Resources: The tutoring slides and sessions for this course are wonderful. They provide great lecture summaries and highlight important points.

General Comments:
As Macromolecules and Metabolism (MM) is the first course of medical school, it provides a great chance to start exploring your study strategy. Try the syllabi, lectures (live, streamed, or recorded), and tutoring slides/sessions to see which materials help you learn effectively and efficiently. The quiz is in the middle of the course, so if you find your strategy is not working, you will still have half the course to redirect yourself. Remember, the first semester does not count for anything at all, so do not be alarmed if your quiz grade is not what you want it to be –you just need to pass the final exam (and don't blow off requiredassignments and sessions)!

Advice from MS2s:

1. Even though some of you may have taken biochemistry before, usually by the second week of class, this course goes beyond what you learned in college, so be aware of that and make sure you still spend adequate time on this course.

2. The tutoring slides for this course (at least the MS2026 version) were very good – highly recommend.

3. Anki decks:
    a. “Wolverine Macromolecules Deck – consists mostly of obscured tutoring slides, which will cover most of the non-metabolism material.
    b. Revised Metabolism Course Deck – commissioned by the faculty and revised by MS2024 students to be more effective.

4. Since this is an early on course, the student resources (such as Anki) aren’t as great, but they get better with later courses during the first semester.

Human Structures

Course Directors: Dr. Janine Prange-Kiel and Dr. Alisa Winkler

Grading:

- Lecture tests (3): 36%
- Laboratory tests (3): 36%
- Online Embryology modules/quizzes (8): 10%
- Block take-home quizzes (3): 3%
- TBL activity: 3%
- Case-based learning activities (3): 3%
- Dissection performance: 6%
- Osteology sessions (3): 1.5%
- Embryology hands-on activity: 0.5%
- Course evaluation: 1%

Calendar:
8/5 to 11/12 (majority of the fall semester)
Exam 1: 8/23, Exam 2: 10/08, Exam 3: 11/12

Lecture: Most lectures are provided as online videos, but some are held in-person in the freshman lecture hall (D1.700). There is a lot of material so stay on top of lectures. All lecture material, written or oral, is testable.

Required activities: lecture tests, laboratory tests, embryology quizzes, TBL activities, dissections, case-based learning activities. The hands-on embryology activity and the osteology sessions are voluntary, **but you get points towards your final grade for attending, so it is highly encouraged to attend.**

Syllabi: Some of the syllabi are formatted differently than for other courses because of the nature of the content. They have helpful summary tables and diagrams.

Textbook: There is no required textbook for this course. An anatomy atlas (like Netter's) is recommended and can be accessed online. During the lab sessions (but not off-hours), iPads will be provided: they provide access to the dissection guide, atlases, dissection videos and other resources. A paper copy of the dissection guide is also available in the lab. You are welcome to bring your personal tablet to lab but need to sign a pledge (available on D2L) that the camera will not be used.

Take-home quizzes: Are available for each block. They are formative and are intended to give you an opportunity to test your knowledge prior to the exams.

Additional Resources: The Veteran Dissector Lab guide is a great way to not only prepare for dissections but also review them. Some students find BlueLink Anatomy from the University of Michigan Medical School (free online) very helpful. The course also has practice lecture questions and laboratory tags on the test resources section of D2L. Complete Anatomy by 3D4Medical is a helpful 3D anatomy atlas –it is free through UTSW. You can get the app on your phone/laptop, and it

is a great way to review structures. You can also see innervation, attachments, etc. The tutoring sessions and slides for this course are fantastic as well. Many people consider them some of the best of medical school. However, be aware that the tutoring slides cover the high yield material but are not comprehensive for the exam.

General Comments: The exams are not cumulative. The second exam has the most material – it covers the head and neck and thorax, and there is a lot of complicated anatomy (cranial nerves, etc.). Try your best not to get behind on this material because it is a lot to learn.

Advice from MS2s:

1. The tutoring slides are excellent material for the lecture portion of this course.

2. Don't neglect embryology, as there are a decent number of questions on embryology on the lecture exams, so definitely study it!

3. There are practice lab and lecture questions on the Anatomy website ("Self-Assessment Website for Laboratory and Lecture Tests"). I cannot recommend students enough to do the lecture practice questions before their exam (try to space them out as you go). They are very helpful and show students the level of detail/style of the questions on the lecture portion. Someone also put these practice lecture questions on the website as an Anki deck (called Grayden's anatomy). The practice questions are the same, but the Anki deck version has nice student explanations that are helpful.

4. There are lab tutoring sessions on Saturdays, which are open to everyone for the first block (by invitation only for blocks 2 and 3) through SASS where anatomy tutors are in the lab. Please take advantage of these times.

5. On most Sundays, there will be open lab sessions (2-4 pm), during which anatomy TAs are in the lab.

6. Some of the anatomy TAs/tutors will also offer private tutoring for $40 an hour (this can be shared among 4 students so $10 each). These are also helpful sessions, but you'll have to make these appointments in advance because tutoring slots fill up. This is **NOT** a necessity by any means in case students can't financially afford it, but if you can, they are helpful.

7. TAs may also host a mock lab practical ($10 per student) before each lab exam. Again, **NOT** a necessity if students can't financially afford it, but they are helpful.

8. Regardless of tutors, try to go into the lab after the other group has done their dissection. After every 1-2 dissections, the cadavers start to look different, and it can be a bit harder to find structures, so it's best to go in after every couple of dissections to review the dissection(s) your group didn't do, so you still have a good idea of what they did. Also, ask your other group to walk you through their dissection, and show them what y'all did. It's a great way to learn.

9. When you go into lab to review structures, look at various body types – different gender, weight, age, etc. Structures look different on each one, so don't get tripped up on that during the exam!

10. Under the O-Drive, there is a click through PowerPoint of each dissection. The images are the same as the VD Anki, but here you can quiz yourself in a similar fashion while also having context for surrounding structures. Some students use this over the VD Anki.

Microanatomy of Tissues

Course Directors: Dr. Peter Michaely and Dr. Joachim Seeman

Grading:

- Final Exam: 48 points
- Quiz: 12 points
- Problem-based learning (PBL) sessions: 2 points each, 16 total
- Multiple-choice problem sets: 1 point each, 8 total
- Annotation assignments: 1 point each, 8 total
- Patient interaction: 2 points
- Microscope competency: 4 points
- Redcap survey: 2 points

Calendar:
8/12 to 9/26
Quiz over sections 1-4: 9/6
Patient interaction: 9/10
Final: 9/26

Syllabus: The syllabus is detailed and includes the full course schedule, due dates for problem sets, and hyperlinks to the lab guides.

Textbook: There are no required textbooks, but three supporting texts are recommended: *Histology: A Text and Atlas* by Wojciech Pawlina (9th edition), *Junquiera's Basic Histology: Text and Atlas*by Anthony (17th edition), and *Molecular Biology of the Cell* by Alberts et al. (5th edition).

Office Hours: Dr. Michaely hosts office hours at noon-1pm most weekdays.

Additional Resources: This course has dedicated **TAs** (no SASS tutors) who may be approached for tutoring; their contact information is available in the full course syllabus on D2L. Study guides and practice exam questions will be posted on D2L; it is **strongly recommended to use these resources to guide your studying.** MasonMicro is a commonly used Anki deck in the O-drive. The lab guide (accessed from D2L) is a great resource as well. Dr. Michaely makes"PBL walkthroughs" with what he intends to be the PBL takeaways, and these videos are very useful. Additionally, there will be a review session in the TBL space right before each PBL, during which Dr. Michaely will **review the answers to the problem set due for that PBL** (which means you can learn the answers prior to the deadline!).

General Comments:
The lectures in the course are pre-recorded and can be viewed at any time. The course has 8 sections each with pre-recorded lectures, problem sets (multiple-choice and annotation) and a PBL. Make sure to review the lectures and syllabus before the PBLs to get the most out of the sessions.

Unlike other courses (besides anatomy), there is a practical section to the quiz/exam in this course that consists of tagging structures based on clues. **Both assessments will be 2/3 annotation questions and 1/3 multiple-choice questions.** The PBLs help prepare for the practical section, so

we recommend taking them very seriously. You can also use the lab guides to study. Additionally, this course requires students to show competency with the use of a microscope in order to pass.

Make sure to **download all the slides for the course in advance** (many students use an external hard drive because the slides take up a lot of storage), so you have them ready for the PBLs.

Advice From MS2s:

1. Dr. Michaely is a great teacher, and his lectures/syllabi are great resources for preparing for the quiz/exam.

2. I would also emphasize reviewing Dr. Michaely's walkthroughs for each of the PBLs as well as his lab guides. These are both essential in order to do well on the practical portion of the exam. Students also need to practice using the NanoZoomer software before the exam because the timing is quick, and some students run out of time if they aren't used to looking at the slides on this software. Before your final, do a "mock" where you practice annotating some cells under a time limit.

3. Running through the lab guide before the PBL is great. Beyond just histologic images, there are explanations on each page that are high yield. Yale Histology is a great resource in addition to the PBLs and lab guide: https://medcell.org/histology/histology.php.

4. Ask questions! There will be faculty and TAs available to help you during PBLs. Dr. Michaely also hosts office hours almost daily.

Cells

Course Directors: Dr. Peter Michaely, Dr. Joachim Seemann

Grading: To pass the course, you need to accrue a minimum of 70 course points AND score at least 70% on the final exam. There are 10 activities where you can earn course points for attendance. The quiz and final exam are mandatory.

- Final Exam: 48 points
- Quiz: 8 points
- Problem Sets (23): 1 point each (23 points total)
- Redcap Survey: 1 point

Course-Point-For-Attendance (CPFA) events:

- CBLs (3): 2 points each (6 points total)
- PBLs (2): 2 points each (4 points total)
- Patient Interactions (5): 2 points each (10 points total)

- SDL (self-directed learning): 5 bonus points (more info can be found on course syllabus)

Calendar:

- Course dates: **9/3 to 9/20**
- CBLs: 9/3, 9/5, 9/6
- Patient interactions: 9/4, 9/5, 9/10, 9/11, 9/18
- PBLs: 9/10, 9/12
- Quiz: **9/13**
- Final Exam: **9/20**

Syllabus: The syllabus is detailed and has hyperlinks to a lab guide with illustrations and key concepts.

Textbook: There is no required textbook for this course. Some syllabi suggest readings from 3 textbooks for background reading or additional information.

1. *Histology: A Text and Atlas* by Wojciech Pawlina (9th edition). Available online through LWW Health Library Basic Science eBook Collection. You will need to be on campus or use VPN.
2. *Molecular Biology of the Cell* by Alberts et al. (5th edition). Available through archive.org.
3. *Physiology* by Linda Costanzo (7th edition). Available online through the Elsevier Clinical Key portal. You will need to be on campus or use VPN.

Office Hours: Dr. Michaely hosts office hours at noon-1 PM on most weekdays in L1.101.

Additional Resources: The lab guide and the cells study guide are very helpful (both accessed via d2l). The cells study guide has the most important concepts outlined so you can know what to study. Tutoring sessions and slides are also a great supplemental resource.

General Comments:

Some of this information may already be familiar to you based on which biochemistry and molecular biology courses you took in undergrad. If not though – no problem – they start from the top and cover all the details. This course has many details, so it is important to know what you should memorize. The cells study guide is a great way to know which concepts to focus on. The learning objectives for each lecture/syllabus can help direct your studying. Be sure to focus on bolded terms in the syllabi. Practice quiz and exam questions are also available on D2L.

If you don't understand something, the lab guide is a great way to refresh and see helpful illustrations.

Genetics

Course Directors: Dr. Markey McNutt and Dr. Jonathan Rios

Grading:

- Final Exam: 50%
- Team Problem Sets: 25%
- Individual Problem Sets: 24%
- Course Evaluation: 1%

Calendar:
9/23 to 10/14

Syllabus: The syllabus for this course is brief compared to previous courses because the course directors intend the syllabus to be a supplement to the recommended textbook, and self-study course materials and practice questions available on D2L.

Textbook: Nussbaum, R.L., Hamosh, A., Nussbaum, R.L., McInnes, R. R., & Willard, H.F. (2016). Thompson and Thompson Genetics in Medicine (Eighth edition). Elsevier.
This is available through the UTSW Library. Specific relevant textbook sections are noted in the Syllabus.

Lectures: There are introductory and review lectures for each of the three primary course content areas, which go over high-yield concepts. The introductory lectures provide background knowledge, and the review lectures consist of brief reviews led by the Instructors that cover topics frequently missed on the problem sets as well as open time for the Instructors to answer any student questions (students are expected to arrive with questions, if any, that will address any confusions or reinforce any specific content topic). It is highly recommended that you attend/watch both the introductory and review sessions. Prior knowledge of genetics and genetic principles (i.e. from undergraduate education) are definitely not required to pass this course, and any knowledge gaps can be easily filled with the lectures and textbook.

Additional Resources: Throughout the course, both Instructors are available to address any questions that arise. You can reach the Instructors via email, or there is a dedicated Discussion Board on D2L (preferred). The Discussion Board is constantly monitored by both Instructors, and all content in the Discussion Board is viewable by all students.

General Comments:
This course is unique in that the instruction, rather than in a lecture format, is mostly provided via problem sets that test knowledge, comprehension, and application of key concepts covered in the course/syllabus. There is a brief syllabus, some pre-recorded videos, and module introductions/reviews. Instead of being instruction-based, this course is problem solving-based and structured for self-directed learning. Because of this format, success in the course is largely student-driven, including maximizing the study time scheduled as part of the course, repetitive use of practice problems, and most importantly, reaching out to Instructors with questions. In past years, much of the Discussion Board activity occurred in the final week of the course, but do not hesitate to seek help early on to maximize your success!

Advice From MS2s:

1. Remember that pre-clerkship is pass/fail, so do not take it too hard if your team misses some questions. It's not a big deal. What matters is being able to solve them on the final exam. Your ability to solve the problem sets independently is the best predictor of passing the final exam, so review them thoroughly.
2. Although the textbook is highly recommended, many students did not use it as they felt the syllabi and intro/review lectures were sufficient if you understand the problem sets. The Instructors do recommend you read all relevant sections of the textbook, as this provides great background knowledge to help you approach the material in the problem sets.
3. If you don't understand something, please ask somebody, use the textbook, or reach out to the Instructors via the Discussion Board. It is very important to be able to solve all of the problem set questions by yourself. You will be prepared for the final exam if you can do so. Make sure to pay attention when Dr. McNutt and Dr. Rios are discussing the problem sets. It is important to understand the explanations.

Pharmacology

Course Directors: Dr. Ron Taussig & Dr. Joseph Albanesi

Calendar:

10/15 to 10/28

Grading:

- Final exam: 70%
- Take-home quizzes: 1 (14%) and 2 (15%) - Open Book!!!
- End of course evaluation: 1%

Syllabus: The syllabi are helpful – some are shorter than they are for other courses.

Textbooks: No required textbook but recommended are The Pharmacologic Basis of Therapeutics by Goodman and Gilman (14th edition) and Basic and Clinical Pharmacology by Katzung (16th edition).

Additional Resources: Some students find Sketchy Pharm helpful. Dr. Michaely has a helpful resource – Pharmacopeia. Tutoring slides are relatively new to this course.

General Comments:

The first week of this course is about pharmacokinetics/pharmacodynamics. Be warned that this is generally much easier than the second week when you start getting into all of the drugs, so prepare accordingly. Most people use this time to get ahead on whatever resources (in-house or third-party) they choose to use for memorizing all of the drugs in week two. The course focuses heavily on the pharmacology of the autonomic nervous system, inflammation, pain, and toxicology. Other topics come up in the remainder of the organ system blocks, so be sure to match your pharmacology study to the pharmacology presented in this course. Make sure to understand all the practice problems – they are high-yield. All the questions focus on material presented in class lectures; this is the best place for preparation for the exam/quizzes. There will be more emphasis on learning the classes of drugs and mechanisms of action rather than memorizing many drugs from the drug lists. Dr. Michaely's Pharmacopeia helps with this.

Advice from the Course Director(s):

1. All questions appearing on the Quizzes and Final Exam are based on the material given in the lectures. Focusing on the material in the lectures and lecture slides will be the most productive use of time.

Advice from MS2s:

1. This class moves fast, especially as you are trying to get ahead or catch up on Human Structures. Because of this, people can overlook the course and be forced to cram a lot of details right before the exam. With just two weeks for the course, there is a ton of material to cover that won't be taught again when it comes to the organ system blocks. Take the time to learn this information now, and use the first half of the course to get ahead on learning and retaining the drugs from the second half of the course.
2. This is a course where many of my classmates really started to utilize some third-party resources as supplements to the class content. Memory banks like Sketchy Pharm and repetition software like Anki (AnKing, Pharm sections) are incredibly useful to hammer in the minutiae of the course. Don't fall into the trap of trying to use every pharmacology resource though. For example, Antibiotics are covered in Organisms and the Host, so if you spend time using third-party resources to study them while in this course, you may miss out on valuable time with pharmacology problem sets and the content of the course.

Good luck! You're over halfway done with your first semester of medical school!

Organisms and the Host (O&H)

Course Director: Dr. David Greenberg and Dr. Ward Wakeland

Calendar:

- Course dates: 10/29 to 12/13
- Active learning session: 11/1
- Active learning session: 11/7
- Microanatomy PBL: 11/7
- Quiz 1: 11/9
- Microbiology active learning session: 11/15
- Pathology Genetics small groups: 11/21
- Bacterial morphology and plating lab: 11/25
- Quiz 2: 11/26
- Gross pathology – Inflammation/repair: 12/3
- Pathology Inflammation small groups: 12/4
- Pathology Repair small groups: 12/5
- Machine learning PBL: 12/6
- Gross pathology – Neoplasia: 12/9
- TBL: 12/9
- Gross pathology – Neoplasia: 12/10
- Small groups path (immunity):12/10
- Small groups path (neoplasia): 12/11
- Final exam: 12/13

Grading:

- Quiz 1: 15%
- Quiz 2: 15%
- Immunodeficiency TBL: 12.5%
- Final Exam: 40%
- The final 15% of the grade will be comprised of the following:
    - 5 small group pathology quizzes: 5% total (1% each)
    - Pathology Gross Tissue reviews: 2% (attendance)
    - Microbiology quiz: 3% (1% for attendance, 2% for quiz)
    - Microanatomy PBL: 3% (1% for attendance, 2% for problem set)
    - Immunology Problems Sets: 3.5% (completion)
    - Course Evaluation: 1%

Syllabus: As with other courses, each lecture has a corresponding syllabus, which contains learning objectives for you to assess your understanding of the content.

Textbook: No textbooks are required, but please refer to the syllabus for supplementary reading materials.

Additional Resources: Tutoring sessions and slides provide a helpful summary of the material and highlight high-yield concepts. Sketchy is a great tool to help you memorize the bugs and drugs. Pathoma provides a helpful, concise introduction to immunology. Sketchy/Pathoma covers material beyond the scope of this course and will not cover everything that is fair game for test questions.

General Comments: This course is long and intense but is many students' favorite course of their first semester! The beginning will cover immunology in depth and then goes into the bugs/drugs and pathology. This is one of the first courses with mainly clinical applications rather than just basic science, so many people find it very interesting.

One of the challenges of the course is the overlap with the end of anatomy – most of the overlapping portion is while immunology is being taught, which is considered one of the more difficult parts of the course. Try to not get behind on immunology while studying for the third anatomy exam. However, once anatomy ends, you will be down to one course and be able to really focus on O&H. Learn the 'bugs and drugs' well the first time because you will see them in future courses, on USMLE, and clinical rotations. Utilizing Sketchy during this course will help you retain the content in the long run and get you a head start for Step prep. There is a ton of content, so start early and pace yourself.

Advice from MS2s:

1. Highly recommend using Sketchy as a supplemental resource for memorizing the content on bugs/drugs, which can be quite dense and difficult to memorize on its own.
2. Although preparing for the last anatomy exam can be super stressful, try to keep up with the start of this course as best as you can. I neglected this course until anatomy wrapped up, which made catching up for the first quiz overwhelming and difficult.

Good luck, and congrats on getting to the last course of the first semester!