

Stratigraphy & Basin Analysis, EARTH 467 (4 credits) – Fall 2021

Principles underlying correlation, sedimentation, and paleogeographic interpretation. Regional stratigraphy and sedimentary tectonics

Instructor: Dr. Naomi Levin, nelevin@umich.edu, 2006 NUB
Office hours: Mon 2:30-3:00pm & Th 4:00-4:30pm, in person or on zoom. Or by appointment.

GSI: Rodrigo T. Figueroa, rtfiguer@umich.edu
Office hours: TBD

Lecture: Tu/Th 10:00-11:30am, NUB 2504

Lab: M 3:00–6:00pm, NUB 2504

Learning Objectives – students will be able to

- Read the stratigraphic record and use it to understand the history of sedimentation, climate, tectonics and life on Earth.
- Relate depositional patterns to basin type and tectonic setting in modern and ancient settings.
- Appreciate the representation of time in the stratigraphic record.
- Reconstruct paleogeographic settings on different spatial and temporal scales.
- Understand the role of basins as archives of information and hosts for resources (e.g. hydrocarbons, water) and contaminants (e.g. nuclear waste, CO₂).
- Interpret and generate primary sedimentological and stratigraphic information.
- Engage the primary scientific literature on stratigraphy and basin analysis.

Textbooks & Resources

- Allen & Allen. 2013. Basin Analysis: Principles and Application to Petroleum Play Assessment, 3rd edition. This is available for free through the UM library. If you are going to rely on the e-version, know the terms for access in advance. [Link to book through the UM library](#).
- Miall, 2016. Stratigraphy A Modern Synthesis. Link to PDF provided on Canvas page.
- Chapters from Interpreting the Stratigraphic Record by Donald Prothero and other readings and resources will be available via Canvas.
- Hand lens, field notebook if you have them

Assessments

	% - undergrads	% - grad students
Weekly quizzes	30	25
Article presentation	10	10
Article review	10	--
Lab exercises, problem sets	40	30
Field Trip report(s)	10	10
Basin Project	--	25

- Weekly quizzes, start of class on Thursdays. Lowest 3 scores will be dropped
- Article presentations: grad students will do these in groups, undergrads will do them individually
- Article review: undergrads will do this as a final project
- Basin Project: includes multiple drafts and peer review

We will use Canvas as much of the class as possible for you to submit assignments. If you see a discrepancy between the due date on the schedule and Canvas please let Naomi or Rodrigo know.

Course Schedule – [click here for up to date schedule](#) or consult Canvas

Labs

Laboratory assignments will be due at the beginning of class the following week unless otherwise noted. See lab schedule for details.

Readings

- The readings listed in the schedule should give you a sense for the material covered on this day of class. It is recommended that you skim the readings prior to class and then read them in more depth after each class. The assigned study questions will help guide your reading and quiz preparation
- Additional readings may be provided via Canvas to cover material that is not in the text. You will receive more detailed guidelines on what to read through the course.
- Ask for clarification if you are uncertain about what is expected in regards to the reading.

Inclusivity

The instructors aim to partner with you work to make this course inclusive in all the ways we can - in the material we cover, the planning we do for field work, and how we interact with each other in the classroom, the field and virtually. This will be a work in progress.

Additional Information & Policies

Digital Devices: Use of digital devices should be limited to class activities. Use of any kind of digital devices unrelated to class will not be tolerated. It's prohibitive to your own learning and distracting to others.

Academic Integrity: In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the internet and electronic devices, unauthorized collaboration, alteration of graded assignments, lying, facilitating academic dishonesty, and unfair competition. Dean for Undergraduate Education. Being found responsible for academic misconduct will usually result in a grade sanction, in addition to any sanction from the college. See [LSA guidelines](#) for more information or ask for clarification if you have questions.

Plagiarism. You must cite the work of others properly. Ask for clarification if you are uncertain of what constitutes a violation. The college promotes the assumption of personal responsibility and integrity, and prohibits all forms of academic dishonesty and misconduct. All cases of academic misconduct will be referred to the LSA Office of the Assistant

Student Rights and Resources: We all need to be aware of and abide by the University of Michigan [Statement of Student Rights and Responsibilities](#), in addition to the [COVID specific addendum to them](#). The [Office of Student Conflict Resolution](#) can be a resource to you if you have questions or experience conflict. The Office of the Dean of Students is a resource to all students. Resources specific to LSA undergrads are available through [Student Academic Affairs](#) and those specific to graduate students are available through the [Rackham Resolution Office](#).

Accommodations: The University of Michigan is committed to providing equal opportunity for participation in all classes, programs, services and activities. Requests for accommodations by

persons with disabilities may be made by contacting the Services for Students with Disabilities (SSD) Office located at G664 Haven Hall. The SSD phone number is 734-763-3000. Once your eligibility for an accommodation has been determined you will be issued a verified individual services accommodation (VISA) form. Please present this form to me at the beginning of the term, or at least two weeks prior to the need for the accommodation

Wellbeing: Learning is easier when you're well. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. There are many resources on campus available for you to be well. I encourage you to seek them out. It is a courageous thing to do. Here's a place to start. <https://wellbeing.studentlife.umich.edu/>.

If the source of your stressors is academic, please contact me so that we can find solutions together. For personal concerns, U-M offers a variety of resources, many which are listed on the [Resources for Student Well-being](#) and [here](#).

Sexual Misconduct Policy: Title IX prohibits discrimination on the basis of sex, which includes sexual misconduct — including harassment, domestic and dating violence, sexual assault, and stalking. Sexual violence can undermine students' academic success and we encourage anyone dealing with sexual misconduct to talk to someone about their experience, so they can get the support they need. Confidential support and academic advocacy can be found with the Sexual Assault Prevention and Awareness Center (SAPAC) on their 24-hour crisis line, 734.936.3333 and at sapac.umich.edu. Alleged violations can be non-confidentially reported to the [Office for Institutional Equity \(OIE\)](#) at institutional.equity@umich.edu

Specific needs: If you have any needs relevant to your success in this course, please contact Naomi or Rodrigo directly. We are here to help you learn.

Class mode: The class will be in-person and interactive. We'll use lecture capture so you can review the course materials after class or if you miss class. I will not be live-streaming class or operating in hybrid mode. If you need to miss class for any reason (feeling sick, quarantining, other reason), please let Naomi and Rodrigo know as soon as possible so we can make alternate plans.

Course recordings and lecture capture: Students are prohibited from recording/distributing any class activity without written permission from the instructor, except as necessary as part of approved accommodations for students with disabilities. *Additional information regarding course recordings and privacy concerns can be found on the [UM ITS Recording and Privacy Concerns webpage](#).*

COVID specific: We will all need to stay on our "A" game to stay safe this semester. This will require flexibility, communication, and attentiveness to the needs of others. The most up-to-date information regarding COVID policies can be found on the [Campus Blueprint's FAQ section](#). They may evolve over the course of the semester.

In LSA all students are expected to adhere to the required safety measures and guidelines of the State of Michigan and the University of Michigan, wearing a face covering that covers the mouth and nose in all classrooms, and not coming to class when ill or in quarantine. It is important to also be thoughtful about group gatherings as well as about classroom activities and exercises that require collaboration. Any student who is not able and willing to comply with campus safety measures for this course should contact Naomi or their academic advisor to discuss alternate participation or course options. Students who do not adhere to these safety measures while in a

face-to-face class setting, and do not have an approved exception or accommodation, may be asked to disenroll from the class.

You can find more information about guidelines, policies etc on the [Wolverine Culture of Care site](#). The [University face mask policy is here](#). Individuals seeking to request an accommodation related to the face covering requirement under the Americans with Disabilities Act should contact the [Office for Institutional Equity](#).