

GLY6425 - Tectonics, Fall 2025

Time: W-F Periods 7-8 (1:55-3:50 pm)

Place: Williamson Hall Room 210

Instructor: R. M. Russo

Office: Williamson 223

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Office Hours: immediately after class or by appointment

Course Description: Earth is a dynamic planet – constantly changing on many time and length scales. On long time scales, Earth dynamics are closely related to mantle structure and circulation, and we will develop basic geophysical constraints deriving from seismology and terrestrial magnetism and gravity. The observational basis for understanding tectonics include data deriving from earthquakes; magnetic and gravity anomalies; hypsometry, topography, and bathymetry; and near surface geology. We will review how plate tectonic theory grew from Wegener's ideas on continental drift, and we will examine in detail the tectonics of plate interactions of all types. We will also develop basic theory of motion on a sphere, and outline available methods for quantifying instantaneous and geological plate motions, plate motion histories, and plate dynamics. Generic Mapping Tools (GMT) will play a significant role in homeworks and projects.

Grading: 70% homework, 30% term paper/project.

Optional Textbook: Plate Tectonics, by *Fossen & Teyssier*, Cambridge University Press

Course Sequence
Chapter 2: Earth Interior & Earthquakes
Chapter 3: Continental Drift
Chapter 3: Paleomagnetism
Chapter 4: Seafloor Spreading
Chapter 4: Transform Faults
Chapter 5: Plate Tectonics
Chapter 6: Mid Ocean Ridges
Chapter 7: Rifts & Rifted Margins
Chapter 8: Continental Transforms & Strike-Slip Faults
Chapter 9: Subduction Zones
Chapter 10: Orogenic Belts

Chapter 11: Precambrian Tectonics & Supercontinents
Chapter 12: Plate Tectonics Mechanisms
November 24 & 28 THANKSGIVING WEEK – NO CLASS
December 03 <i>Last Class</i>

Instruction will be in-person, in class. Students who wish to attend via UF zoom may do so with permission from the instructor.

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center. [Click here to get started with the Disability Resource Center](#). It is important for students to share their accommodation letter with the instructor and discuss their access needs, as early as possible in the semester.

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor.

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session. Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.