

GEO 406LRS: Science Capstone Experience

A class for future teachers

LO 1227 – Tuesdays 1:00 pm – 3:45 pm

Instructor Information

Matthew d'Alessio
(Professor in Dept. of
Geological Sciences)

Office Hours

Location: LO 1228

Times: Mon 9:30-10:30a
and by appointment

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Special needs

I am committed to accommodating those with special physical or learning needs. Please let me know.

Fine Print

It is the responsibility of each student in this course to know and follow all written guidance given by the instructor.

Unforeseen circumstances during the semester might require changes to the syllabus. In this event, a revised syllabus will be posted to Moodle at least one week in advance of the implementation of the change. The original syllabus will remain and the revised syllabus will be identified by the date of the revision as part of the file name. Dates of examinations will never be moved forward.

A class for future teachers

Teaching is one of the most gratifying professions you can imagine, but it is also serious and challenging work. Teachers often spend more time with their students than many parents, and over a career you might deeply touch over a thousand lives (parent to over a thousand children!). You therefore have the responsibility to be a positive role model. You can't be late (or if you are, you'll be fired). You can't yell every time you get a little frustrated (or if you do, you'll be much less effective). You can't lie (your students will always catch you). In many cases, you can't even go to the bathroom. Teachers are superstars. If you want to be one, now is the time to start practicing these skills of excellence. This class has high expectations for learning and integrity, and low tolerance for excuses.

Teaching Takes Practice

As you transition from being a lifelong student to being a career teacher, you'll need to practice facing new situations. In this class, we'll practice teaching science in a supportive environment called microteaching. Each week, you will prepare to teach a micro-lesson to your team of 5-6 peers. The lesson plans are already written and come from the FOSS kits that LAUSD uses to teach elementary science. By teaching your peers, you will master both science content and gain valuable practice in front of a very small, very forgiving "classroom."

Your peers will assess your preparation and performance in order to give you valuable feedback that can help you improve your science teaching.

Team based learning

Research shows that you can learn more from your peers than you can from professors. To facilitate this learning, you will spend a good portion of the class working in teams. You will work with the same team the entire semester, and you will not be able to choose your team. Since having unprepared teammates can impact your experience, there is a procedure for "firing" a student from your team posted on the Moodle website for our class. In past experience, we rarely need to employ this policy. Almost all required teamwork will be in class, so there is no need to worry about coordinating your schedules.

Electronic Equipment

Class time is a few short hours a week to devote to focused learning. Save phone calls, text messages, web surfing, and other activities for designated breaks or after class. Many K-12 schools have "No cell phone" policies, so you might as well get used to it now. Keep your cell phone out of your own site so you won't be tempted. There will be penalties for violating this policy.

* Portions of this syllabus are copied from a model for this class by Professor Doug Yule, 2009.

Grades

The grading policy in this class gives merit to three general areas:

- Your preparation, as measured by homework assignments and quizzes covering homework material conducted at the beginning of class.
- Mastery of science content, as measured by summative quizzes conducted periodically at the end of topics
- Growth as a science teacher, as measured by peer assessment of your microteaching.

I will calculate your grade using the categories in the table below.

No Extra credit. There will be no individual extra credit, though there will be occasional team bonus points awarded for winning competitions, etc.

Academic dishonesty, copying, cheating

I expect high standards of academic integrity from future teachers so there is a **zero-tolerance rule** for academic dishonesty in this class. I will refer all cases of academic dishonesty (including copying, allowing others to copy your work, plagiarism, failing to cite your source, copying/pasting text from the internet even with modifications, misrepresentation of others' work as your own, violations of the collaboration policy below, etc.) to the VP of Student Affairs' office for arbitration and possible disciplinary action. The first offense will result in, *at minimum*, the reduction of your final grade by one partial letter grade (A- becomes B+), the second offense will result in an F for the class. It is not worth the risk to cheat or let someone copy your work in this class.

If You Miss A Class Meeting: Leave Days

Teachers typically get 10-12 days of sick leave that they can miss without penalty. In this class, ***you can miss one day, no questions asked and with no penalty.*** To request a leave day, you must ***fill out the form on Moodle either before your absence or within 7 days after.*** After using your leave day, you will receive no credit for days you miss. Homework due that day should be turned in the following class period with the words "LEAVE DAY" written on top. I do consider extenuating circumstances. You may **not** use a leave day on a day for which you are scheduled to microteach. You will receive zero for those days. Instead, you'll need to arrange a substitute by contacting your teammates and seeing if someone else can volunteer to switch with you.

Late Assignments

NO late assignments will be accepted except for those that result from a medical/legal emergency affecting you or a close family member. Such an emergency will have to be documented in writing by an appropriate medical/legal authority and will be accepted at no penalty.

Grades of incomplete cannot be given in laboratory classes.

Grades are calculated using the following items:							
Microteaching	150 pts	3 times, 25 / 50 / 75 points					
Peer/Self-Assessment of microteaching	90	18 lessons, 5 points each					
Post-teaching reflections	60	3 times, 20 pts each					
Quizzes	65	3 times, about 20 points each					
Homework	45	5 times, 5-15 points each					
Other	5	In class surveys					
TOTAL	415 pts						
Plus-minus grading will be utilized for this course based on the following grade boundaries:							
	B+	365-379	C+	320-334	D	275-290	
A	395-415	B	350-364	C	305-319	F	< 290
A-	380-395	B-	335-349	C-	290-304		
Rounding: Final course average scores are rounded to the nearest integer.							

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	Date	Topic	Activities	Homework Due
1	28-Aug	What makes a good science class?	Human Likart scale, STEBI-B, Team Selection, Gallery walk, Microteaching signup	
2	4-Sep	How does science work?	Introduce microteaching & peer assessment / Why do balls bounce?	HW1: What are the qualities of good teaching?
3	11-Sep	Microteaching 1	FOSS Environments: Terrestrial environments / Reading & Science	HW2: Pre-quiz
4	18-Sep	Microteaching 1	FOSS Environments: Range of Tolerance / Food Webs	*
5	25-Sep	Microteaching 1	FOSS Environments: Recording Changes / Blooming Thermometers	*
6	2-Oct	Microteaching 1	Range of Tolerance II / Post-quiz	*
7	9-Oct	Microteaching 2	Wrap-up Microteaching 1 / FOSS Water Planet: The Water Cycle	HW3: Pre-quiz
8	16-Oct	Microteaching 2	FOSS Water Planet: Water Vapor	*
9	23-Oct	Microteaching 2	FOSS Water Planet: Weather	*
10	30-Oct	Microteaching 2	FOSS Mixtures & Solutions: Salt Saturation / Post-quiz	*
11	6-Nov	Microteaching 3	Wrap-up Microteaching 2 / Kinesthetic Astronomy 1	*, HW4: Pre-quiz; HW5 on Moodle: Modify a Lesson
12	13-Nov	Microteaching 3	FOSS Solar Energy: Shadow Tracking / Sun-Angle	*
13	20-Nov	Microteaching 3	FOSS Water Planet: Heating Earth / Convection	*
14	27-Nov	Microteaching 3	Kinesthetic Astronomy II / Post-quiz	*
15	4-Dec	Games in Science Class	Climate solutions challenge, Climate negotiation simulation, Course review game	HW6: Surveys on Moodle

*: Micro-teachers prepare their lessons; Last week's micro-teachers complete post-teaching reflection.