Principles of Scientific Reasoning (FYS 100, SEC 50, CRN 44906)

Instructors:
- Dr. Ed Mosteig (pronounced “moss–tag”), Lead Instructor
- Dr. David Berube
- Dr. John Dorsey
- Jason Jenkins, Writing Instructor

Fall Class Meetings: Thursdays, 3:00pm-6:00pm in UH 2786

Phone: 310-338-2381

E-mail: emosteig@lmu.edu

Office Hours: My office is located in UH 2769.
- Monday 1:00–3:00
- Wednesday 11:00–12:00
- Thursday 2:00–3:00

You are welcome to drop by during these hours without contacting me in advance except when announced in class and on our course website. I am guaranteed to be in my office at those times, with exceptions during University Holidays or special times that will be announced in class or emailed to everyone. Alternatively, contact me via e-mail if you would like to make an appointment to see me.

Important Dates: During the fall semester, you should keep track of the following dates, which all appear on our calendar. Assignments, readings, and projects are all detailed on google calendar, which directly links to your lion account.

Individual Meetings:
You must attend four scheduled meetings with me throughout the 2013–2014 academic year, twice in the fall semester and twice in the spring semester. Discussions during these meetings will include academic support, resource acquisition, campus acclimation, general well-being and or any other topics pertinent to your success. It is your obligation to take the initiative in scheduling these meetings.

Grading Scheme: Your overall score will be broken down according the following percentages.
- Writing Compositions and Projects (30%)
- Mathematics and Science Laboratory Assignments (15%)
- Banquet Presentation (10%)
- Oral Presentations (10%)
- Essays and Responses (20%)
- Participation and Engagement (5%)
Information Literacy (10%)

**Financial Literacy:** At multiple points throughout the semester, you will be asked to log into LMU’s information literacy website. To do so, follow the directions below:
1. Log in to MyLMU Connect and click on our course to enter the course site.
2. Click on the “Information Literacy” link in the menu on the left-hand side of the page.
3. Click the link for the tutorial you are assigned. The tutorial will open in a new window.

**Grade Assignments:**
Once the fall semester begins, you may obtain your current grade for the semester at mylmuconnect.lmu.edu. Grades will not be curved in this class; rather, they will be strictly assigned according to the following cutoffs in the table below.

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<thead>
<tr>
<th>Grade</th>
<th>Minimum Score</th>
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<tbody>
<tr>
<td>A</td>
<td>94-100</td>
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<tr>
<td>A-</td>
<td>90-93</td>
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<tr>
<td>B+</td>
<td>87-89</td>
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<tr>
<td>B</td>
<td>83-86</td>
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<tr>
<td>B-</td>
<td>80-82</td>
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<tr>
<td>C+</td>
<td>77-79</td>
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<tr>
<td>C</td>
<td>73-76</td>
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<tr>
<td>C-</td>
<td>70-72</td>
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<tr>
<td>D</td>
<td>60-69</td>
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<tr>
<td>F</td>
<td>0-59</td>
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**Course Description:**
An introduction to mathematical and scientific reasoning with emphasis on inductive and deductive arguments, the scientific method, the notions of definition and classification, as well as communication and critical thinking skills in mathematics and the sciences.

**Course Objectives:**
- Understand and appreciate the intellectual rigor and academic excellence that defines an LMU education.
- Strengthen both written and oral communication skills.
- Acquire both general and discipline-specific research skills.
- Produce and analyze arguments in a variety of disciplines.
- Develop problem-solving skills in mathematics, science, and other fields.
- Investigate the notions of definition, classification, and conjecture, applying these to a variety of disciplines.
- Investigate the career paths of current scientists and scientific educators.

**Learning Outcomes:** All of the outcomes below should be reached by the end of the course.
Students should be able to construct a scientific report.

Students should be able to formulate and test conjectures. This includes both constructive approaches to purely theoretical problems that involve deductive reasoning as well as designing an experiment that employs inductive reasoning through the scientific method.

Students should be able to express their ideas through oral and written communication in a cohesive and engaging manner at a level appropriate for their audience.

Students should be able to clearly articulate the roles and responsibilities carried by scientists, and understand the educational and experiential trajectories needed to succeed in careers that require scientific training.

Students should be able to use the library catalog and electronic databases to retrieve books or articles, whether in print or online.

Students should be able to evaluate sources for quality (e.g., by learning to differentiate between scholarly and popular sources).

Attendance:

The class is a collaborative experience, and I expect everyone to help one another. You will be actively engaged during the class period, and so weekly attendance is absolutely mandatory. I expect everyone to keep up with the material and be ready to participate on a daily basis. This means you need to review your notes before coming to class so that we can pick up where we left off from the previous meeting. Since we only meet once per week, you cannot afford to miss a single class period.

Homework:

Homework is an extremely important component of this course. You must work hard to complete every problem, and you should construct articulate explanations for all of your claims. I strongly encourage you to use all the resources available to you, including working with other students in the course and coming to see me during office hours. Although you are responsible for writing up your own solutions and not just copying someone else’s write-up, working together is a great way to learn the material and is strongly encouraged. However, you are never to look at another student’s homework as an aid for yourself. I take this very seriously, and I consider any such violation a breach of academic honesty. You may communicate with one another and discuss approaches to a problem, and even work on the problems together. Nonetheless, either lending or borrowing another student’s write-up to a problem means that one person is essentially copying someone else’s work. Just because you may rewrite someone else’s solution in your own words does not mean you have gone through the problem-solving process. For each homework assignment, you must cite any sources you have used, including other books, websites, or students with whom you collaborated in constructing solutions.

Late Homework Policy:

Homework is to be turned in at the beginning of the period on the day it is due. Any homework turned after class has begun will receive a zero.
Technology:

A graphing calculator may be useful for this course. In addition, we will be using computer software such as Microsoft Office and Mathematica.

Electronic Devices:

Please turn off and put out of sight all electronic devices other than calculators. The distractions they cause disrupt class and usurp precious class time. An offender may lose credit for the day’s work.

Academic Honesty:

Academic dishonesty will be treated as an extremely serious matter, with serious consequences that can range from receiving no credit for assignments to expulsion. It is never permissible to turn in any work that has been copied from another student or copied from a source (including the Internet) without properly acknowledging the source. It is your responsibility to make sure that your work meets the standard of academic honesty set forth in the “LMU Honor Code and Process” in the most recent Undergraduate Bulletin.

Americans with Disabilities Act:

Students with special needs as addressed by the Americans with Disabilities Act who need reasonable modifications, special assistance, or accommodations in this course should promptly direct their request to the Disability Support Services Office. Any student who currently has a documented disability (physical, learning, or psychological) needing academic accommodations should contact the Disability Services Office (Daum Hall Room 224, 310-338-4535) as early in the semester as possible. All discussions will remain confidential. Please visit http://www.lmu.edu/dss for additional information.

Classroom Respect:

As an LMU Lion, by the Lion’s code, you are pledged to join the discourse of the academy with honesty of voice and integrity of scholarship and to show respect for staff, professors, and other students.

Classroom Behavior:

Disruptive behavior which is persistent or significantly interferes with classroom activities may be subject to disciplinary action. A student may be referred to the Office of Student Judicial Affairs if their behavior constitutes a violation of the conduct code.

Email Communication:

At times I will communicate with the entire class using campus email systems, so it is essential that you regularly check your lion.lmu.edu email address or forward your lion account email to your preferred email address.

Note:

If necessary, this syllabus and its contents are subject to revision; students are responsible for any changes or modifications announced in class.