



## Syllabus for Mathematical Visualization MTH492

**Instructor:**  
Greg Crow,  
Ph.D.

**Class meeting:**  
R 7:30-9:20

**Office hours:**  
Rohr Science  
220

**Texts:**  
Various Mathematical Visualization Texts are available in the professor's office.

One example is

*Math Made Visual: Creating Images for Understanding Mathematics*

Alsina and Nelson

The Mathematical Association of America

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### Required Materials

Supplies: One USB drive or other suitable storage device or system.

### Comment

We will try and avoid the following pitfall by making lots of nice pictures:

At the beginning college level, visualization is a big part of understanding. Consequently, students who are operating with few mental pictures are not really learning mathematics. Their calculus consists of a vast series of algorithms and a complicated cataloging system which tells them which procedure is used when. The effort put into this kind of teaching and learning is largely wasted: memorized algorithms are soon forgotten and, worse still, **such courses perpetuate the idea that math involves doing calculations rather than thinking** [emphasis added].

(by Deborah Hughes Hallet in *Visualization and Calculus Reform*, in the collection *Visualization in Teaching and Learning Mathematics*, edited by Zimmerman and Cunningham (MAA notes #19))

## Portfolio

A partial portfolio of your work will be submitted via e-mail near mid-semester. It will consist of as many of the required elements as you have been able to master. Your completed semester portfolio will be submitted via e-mail at the end of the course.

The portfolio will be graded based on the degree of sophistication shown in the following areas:

- Depth of insight
- Difficulty of the topics
- Clarity of Presentation
- User friendliness
- Inclusion of required elements

## Examinations

There will no mid-semester examinations.

## Grading Policies

Grading Distribution	
Mid-Term Portfolio	200 points
Final Portfolio	800 points
Total	1000 points

**Grading scale.** Grades are based on the number of points accumulated throughout the course. Approximate minimal percentages required to obtain a given grade are:

Grading Scale in percentages				
	A	B	C	D
+		[87.5, 90)	[77.5, 80)	[67.5, 70)
	[92.5, 100]	[82.5, 87.5)	[72.5, 77.5)	[62.5, 67.5)
-	[90, 92.5)	[80, 82.5)	[70, 72.5)	[60, 62.5)

## Attendance Policy

After you miss the equivalent of 10% of the classes and labs, you will be warned of impending de-enrollment. If you miss the equivalent of 20% of the classes, you may be de-enrolled or given a course grade of "F" for the semester. Tardiness may result in being marked absent.

Attendance is expected at each class section. In the event of an absence you are responsible for the material covered in class and the assignments given that day. See the Point Loma Nazarene University Catalog for a statement of the university's policy with respect to attendance:

Regular and punctual attendance at all classes in which a student is registered is considered essential to optimum academic achievement. Therefore, regular attendance and participation in each course are minimal requirements to be met. There are no allowed or excused absences except when absences are necessitated by certain university-sponsored activities and are approved in writing by the Provost. Whenever the number of

accumulated absences in a class, for any cause, exceeds ten percent of the total number of class meetings, the faculty member has the option of filing a written report to the Vice Provost for Academic Administration which may result in de-enrollment, pending any resolution of the excessive absences between the faculty member and the student. ... If the date of de-enrollment is past the last date to withdraw from a class, the student will be assigned a grade of W or WF (no grade). There are no refunds for courses where a de-enrollment was processed. (See the Catalog for full text)

### **Class Enrollment**

It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.

### **Classroom Attire**

All students are expected to dress in ways that make the classroom a place where all students are comfortable and can work efficiently. Distracting attire is not permitted in the classroom. For example, attire associated with the "rush" activities of fraternities and sororities simply causes too many distractions in the classroom. If you choose to "rush" one of the fraternities or sororities, please make sure the "rush" officials know that "rush" attire will not be allowed in this classroom.

### **Academic Accommodations**

While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic accommodations. At Point Loma Nazarene University, students requesting academic accommodations must file documentation during the first two weeks of the semester with the Disability Resource Center (DRC), located in the Bond Academic Center. Once the student files the documentation, the Disability Resource Center will contact the student's instructors and provide written recommendations for reasonable and appropriate accommodations to meet the individual needs of the student. This policy assists the University in its commitment to full compliance with Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990 (ADA), and ADA amendments Act of 2008, all of which prohibit discrimination against students with disabilities and guarantees all qualified students equal access to and benefits of PLNU programs and activities.

Students in need of academic accommodations as defined by the laws listed above, must discuss options with the professor within the first two weeks of class, and must complete the documentation process with the DRC within the first four weeks of class.

### **Academic Honesty**

The Point Loma Nazarene University community holds the highest standards of honesty and integrity in all aspects of university life. Academic honesty and integrity are strong values among faculty and students alike. Any violation of the university's commitment is a serious affront to

the very nature of Point Loma's mission and purpose.

Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. Such acts include plagiarism, copying of class assignments, and copying or other fraudulent behavior on examinations. For more details on PLNU's policy go to:

<http://www.pointloma.edu/experience/academics/catalogs/undergraduate-catalog/point-loma-education/academic-policies>

A student who is caught cheating on any item of work will receive a zero on that item and may receive an "F" for the semester. See the PLNU Catalog for a further explanation of the PLNU procedures for academic dishonesty.

### **Final Exam: Date and Time**

The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor. Only in the case that a student is required to take three exams during the same day of finals week is an instructor authorized to change the exam date and time for that particular student.

The **Final Exam** will be held at a local restaurant from 7:30-10:00 AM on Thursday the 19th of December, 2013

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*Last modified on 4-Sep-2013*

*Send comments and suggestions to [E-mail: gcrow@pointloma.edu](mailto:gcrow@pointloma.edu)*