Math 421, Spring 2016 — Lecture 1
Syllabus

Instructor: Gloria Marí Beffa
Office: Van Vleck 309/219
Office Hours:
     Tuesdays 11:00 am – 12:00 pm, Thursdays 2:30-3:30
     Additional times may be available by appointment
         (please email or stop by my office to make arrangements)
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Overview of course goals:
   Course description (adapted from the registrar): This course covers material in first and second semester calculus but it is intended to teach math majors to write and understand proofs in mathematics in general and in calculus in particular.
   Prerequisites: Math 234 or consent of instructor. Open to Freshmen.

Practical information

Class times:
   TTh 9:30 am – 10:45 am, Room: Van Vleck B119.

Course website: www.math.wisc.edu/ maribeff/421.html

Textbook:
   M. Spivak. *Calculus, 4th ed.*
   ISBN: 9780914098911
   (Note: the text is also available on reserve through the UW libraries.)

Course policies

Homework: There will be roughly 12 problem sets, assigned approximately weekly except for the weeks of the midterm exams (see below). Homework will generally be assigned every day and the weekely assignment will be due the following Tuesday; however, this schedule may be modified from time to time as needed.
   Please note the following rules for homework submission:

- All homework should be written legibly and in complete sentences.
- Collaboration on homework is permitted, however all solutions you submit must be written independently (i.e. you may work together to generate solutions to problems, but you should write up the solution you submit on your own).
- All homework should be submitted in hard copy at the start of lecture on the day it is due.
- You will be allowed to drop the lowest 2 quizzes scores. This is not meant to improve grades but rather to account for those times when you will be unable to finish the homework on time. We will not accept late homework.

Exams: We will have two midterm exams and one two-hour final exam during the final exam period. Makeup exams will be scheduled only with the instructor's consent, and only in cases of illness or emergency. No books, notes, or electronic devices will be allowed during the exams.

McBurney center: Students with a McBurney visa should contact me as soon as possible so that we can discuss arrangements to fit your needs.

Policy on collaboration, use of outside resources

As mentioned above, collaboration on homework is permitted (and encouraged!). However, keep in mind that collaboration should help you learn to better solve problems. Note the following guidelines:

(i) think about the problem yourself first,

(ii) write up the solution on your own to ensure you understand all of the relevant concepts completely,

(iii) consulting solutions from prior years or using collections of solutions found on the internet is counter-productive and you will not learn by copying. One can only learn to write proofs by writing them yourselves - with the help of others if needed.

Grading

Homework (15%): 10 assignments.
        (The lowest 2 homework scores will be dropped.)
Midterm Exam 1 (25%):

Midterm Exam 2 (25%):

Final Exam (35%): Comprehensive.
        Date: To be determined by registrar's office.
        Location: To be determined by registrar's office.

Approximate Course Schedule / Reading Assignments

The following is a rough description of the topics we will be covering each week. In addition to lecturing, we will be practicing proof-writing in class, and I will take attendance. Learning how to write proofs is not easy and requires much practice, so please do not skip any session.

January

T19-R21   Introduction and Functions (Chapter 3).
T26-R28   Graphs (Chapter 4).

February

T2-R4   Limits (Chapter 5).
T9-R11   Continuous functions (Chapter 6).
T16-R18   Three Hard Theorems (Chapter 7).

T23   Catch up and Review.
R25   FIRST MIDTERM (in class).

March

T1-R3   Derivatives (Chapter 9).
T8-R10   Differentiation (Chapter 10).
T15-R17   Inverse functions (Chapter 12).

SPRING BREAK

T29-R31   Integrals (Chapter 13).

April

T5   Catch up and Review.
R7   SECOND MIDTERM (in class).

T12-R14   The Fundamental Theorem of Calculus (Chapter 14).
T19-R21   Integration in elementary terms (Chapter 19).
T26-R28   Approximation by polynomial functions (Chapter 20).

May

T3-R5   Catch up and Review, last week of classes !!!!!!