**MATH 601 Analysis for Teachers -- Spring 2012**

**Time/Place:** Thurs 7:20 pm - 10:00 pm Robinson Hall B Room 106

**Text:**  *Inside Calculus* by George Exner, Springer 1999

**Prerequisites**: Open to in-service teachers of mathematics at middle or secondary level. Others may enroll with permission of instructor.

**Instructor**: Dr. Michael R. Gabel, Mathematical Sciences & New Century College (Enterprise Hall room 410)

**E-Mail**: [mgabel@gmu.edu](mailto:mgabel@gmu.edu) **Phones**: My Office in NCC: (703) 993 1484 NCC Main Office: (703) 993 1436 Mathematical Sciences Main Office: (703) 993 1460

**Office Hours**: Tuesday 3:15-4:15, Thursday 6:30-7:00 and by appointment

**Course Web Site**: There is a Blackboard site: Go to [https://mymason.gmu.edu](https://courses.gmu.edu/) and log in to find it.

**Course Description (catalogue)**: Develops continuous ideas of calculus with particular emphasis on concepts as opposed to computational aspects of calculus. Specific topics include decimal representation of real numbers, sequences, series, and limits; differentiation to find speed, slopes of curves, and tangents; integration to find volumes and distances and area under curves. Optimization problems including maximization of area and volume, and modeling of these concepts. Graphing techniques supported by theory of calculus and graphing utilities such as TI-83 calculator or computer software such as Maple.

**Text Material Covered:** Much of chapters 1 through 9 and parts of chapter 10

**Course Topics:** Real numbers, Limits, Continuity, the Derivative, Sequences, Series, and the Integral

**Philosophy of the Course and Some Advice**:

This course is rather theoretical, as it is, in fact, the theoretical side of basic calculus. This material is often deemphasized (rightly so) in a beginning calculus sequence, but a thorough and self-assured understanding of calculus requires this sort of material.

The key objective is for you to be competent and confident in not so much every particular concept/theorem/proof but to gain the skills so that if you need to learn/teach something that you have not seen or cannot remember. That said, you must keep up with the material (I suggest you read ahead) and do ALL the assigned homework. Don't miss any classes. Take good notes. **Your goal should be complete understanding of all the material.** To this end, do not hesitate to ask questions in class and to come to see me during my office hours. Devour your text. This class will be participatory. I’ll expect you to be prepared to both ask and answer questions during the class. In addition, much of this class will include expositions on your part based on work you have done outside of class.

**Course Notebook:** Required is a course notebook containing the following sections:

(a) Your solutions to our book's "in-text" questions (written for "public" view, in "teacher mode")

(b) Solutions to the homework problems (written for "public" view, in "teacher mode")

(c) Class notes "essences" for each class - key ideas/definitions/theorems/proofs (sketches)

(d) Raw class notes

**Calculator/Computer Component:**  You will find it very useful to have access to a graphing calculator, spreadsheet software, or Maple.

**Final Exam**: There is a comprehensive final exam. All or part of the final may be take-home. Any take-home part would be due at the end of the course’s scheduled final exam period. The final is scheduled for Thursday, May 10, 2012, from 7:30 pm to 10:15 pm

**Exams/Quizzes:** In addition to the final exam, there will be two exams. Each will be announced at, at least, the two proceeding class periods. We may have several in-class quizzes. Quizzes will be announced at, at least, the preceding class period. All or part of the exams may be take-home.

**NOTE**: If you feel you feel you must miss an exam or a quiz, due to illness or other emergency, you *must* notify me *before* the exam or quiz in order to determine what (if any) make-up procedure will be used. **Do not simply show up in class after the exam or quiz has been given or is due and expect any consideration for a makeup.** E-mail is the best way to contact me. Include a phone contact, if possible, in that e-mail.

**Grades**: The final grade will be based on the exams, the quizzes, and the final exam. Performance on homework, your presentations, and, particularly, the final exam will be used to decide borderline grades. Your Final Course Grade will be determined as follows and, except in special circumstances, the grade ranges will be as follows:

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| --- | --- | --- | --- | --- | --- |
| Basis of Final Course Grade | | [Probable] Grade Ranges | | | |
| Hour Exams and Quizzes | 60% | A+ | 98-100 | C+ | 77-79 |
| Final Exam | 40% | A | 93-97 | C | 73-76 |
|  |  | A- | 90-92 | C- | 70-72 |
|  |  | B+ | 87-89 | D | 60-69 |
|  |  | B | 83-86 | F | Less than 60 |
|  |  | B- | 80-82 |  |  |

**HONOR CODE**: GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. Except when explicitly stated to the contrary, all work is to be your own work. In particular, collaboration on homework is permitted. Exam and quiz work is to be your own. Evidence of violation of this policy constitutes grounds for referral to the University Honor Committee.

**GMU EMAIL ACCOUNTS** Students must use their Mason email accounts—either the existing “MEMO” system or anew “MASONLIVE” account to receive important University information, including messages related to this class. See [http://masonlive.gmu.edu](http://masonlive.gmu.edu/) for more information.

**OFFICE OF DISABILITY SERVICES** If you are a student with a disability and you need academic accommodations, please seeme and contact the Office of Disability Services (ODS) at 993-2474. All academic accommodations must be arranged through the ODS: [http://ods.gmu.edu](http://ods.gmu.edu/)

**COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS):** (703) 993-2380: [http://caps.gmu.edu](http://caps.gmu.edu/)

**UNIVERSITY POLICIES** The University Catalog, [http://catalog.gmu.edu](http://catalog.gmu.edu/), is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at <http://universitypolicy.gmu.edu/> . All members of the university community are responsible for knowing and following established policies.