

Professor: George L. Ashline

Office: 261 Jeanmarie Hall, Phone: 654-2434

Office Hours: M, W from 1:30 to 2:30 PM and T, Th from 12:30 to 2:00 PM; also, feel free to set up appointments with me for other times.

Class Meets: M and W from 8:05 to 9:20 AM in Jeanmarie 281

Textbook: Bressoud, David, *A Radical Approach to Real Analysis*, MAA, 1994

Comments on the textbook:

Bressoud's book offers an interesting departure from a typical analysis textbook. In it, rather than presenting concepts beginning with axioms and then in the order of the final logical development, he takes a historical approach and highlights some problems which led mathematicians to develop the analysis concepts. The hope is to make real analysis seem more natural by considering how it actually developed.

One reason why analysis can be challenging is that by only seeing it in its final form, it can be difficult to see where the subject is leading or why it is posed in a certain way. This semester we will start with some important problems and then consider the concepts developed along the way before reaching the final forms of the solutions. The challenge of this historical treatment is that you will need to remind yourself of what is known and what are the final objectives. You will have seen some of these analysis concepts before in Calculus and Real Analysis I, and hopefully your efforts in this course will enhance and extend your understanding.

Through Bressoud's book, you will be engaging in your own exploration of analysis and its history, and will be aided by a variety of exercises and the Maple computer algebra systems. As always, your work on these problems will play a critical role in the success of your exploration, and please let me know if you have questions or concerns about them.

Technology: As mentioned above, some questions will require your use of Maple. Please consult the handout *General Information: Maple Under Windows* to review some of Maple's basic commands, which you will be expanding upon in your work this semester.

eCollege and Home Page: I will post the course outline/syllabus and other updates and materials at our eCollege course site at <http://www.smcvtonline.org/>. You may wish to visit it regularly during the semester. I will periodically send out e-mail announcements and you can find these also at the site. Other course materials, such as homework and exam solutions, will be available in the "Doc Sharing" portion of the site. Also, you can access other information about this course and other courses I teach at <http://academics.smcvt.edu/gashline/>. I have listed there a number of Internet sites on Real Analysis, and you may find these and other sources, such as our library's databases helpful in your work on your final presentation and paper.

Homework: Problems will be assigned regularly. Each problem set will have a specified due date. You are strongly encouraged to keep up with the material on your problem sets. If you are having difficulty with some of the new concepts, try to resolve your questions early on before they have a chance to grow. Of course, feel free to stop by my office to ask questions and discuss any difficulties you may encounter.

Exams: There will be two in-class exams during the semester tentatively scheduled on Wednesday, February 14 and Wednesday, April 4. More information on these will be forthcoming.

Presentation/Paper: Each of you is to prepare a thirty to forty minute lesson/presentation for the end of the semester and a corresponding final paper on a Real Analysis topic of your own choosing. A list of some possible topics will be distributed later in the semester, as well as a handout with suggestions for your work on this. By Wed., February 28, you are to submit your topic choice, including a typed paragraph or two with a tentative title, abstract, and resources that you intend to use. By Wed., March 21, you are to submit an

outline of your paper/presentation. In this outline, you should include your topic, your paper/presentation title, your paper focus and outline, which part(s) of your paper you intend to present, a working bibliography of sources you are using, and other pertinent information. Please see me before then if you have any questions about your project. Finally, you are strongly encouraged to consider giving a version of your presentation at the 2007 Hudson River Undergraduate Mathematics Conference (HRUMC) at Siena College on Saturday, April 21st. See <http://www.skidmore.edu/academics/mcs/pages/hrumc.htm> for more details.

Grading: Your grade will be based on homework, your presentation/paper, and your exams according to the following distribution:

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|-----------------------|------------|
| Homework | 125 points |
| Highest semester exam | 125 points |
| Lowest semester exam | 100 points |
| Final presentation | 50 points |
| Final outline/paper | 100 points |

Thus, your final course grade will be based on a total of 500 points.

Summary of Important Dates:

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|-------------------------------------|------------------------------------------------------------------------------|
| Exam 1 | W February 14 (late afternoon?) |
| HRUMC abstracts due/conference date | Sun February 25/Sat April 21 |
| Presentation topic due | W February 28 |
| Presentation outline due | W March 21 |
| Exam 2 | W April 4 (late afternoon?) |
| Presentation dates | W Apr. 11, M Apr. 16, W Apr. 18, M Apr. 23, W Apr. 25, M Apr. 30, W May 2 |
| Final paper due | W May 2 |

If you are aware of a conflict with these dates, let me know of it as soon as possible *beforehand*.

Learning Disabilities: Any student having a documented learning disability that may affect the learning of mathematics is invited to consult privately with me during the first week of the semester so that appropriate arrangements can be made.

Academic Integrity: You are reminded of the academic integrity policy of Saint Michael's College. Simply stated, academic integrity requires that the work you complete for this class is your own. Some examples of offenses against academic integrity include plagiarism, unauthorized assistance, interference, and interference using information technology. Details about academic integrity offenses and the possible sanctions resulting from them have been distributed at the beginning of the academic year and also can be found in the Assistant Dean's office.

Class Attendance: The following is taken from p. 49 of the Saint Michael's College 2006-2007 Catalogue: "Students should understand that the main reason for attending college is to be guided in their learning activities by their professors. This guidance takes place primarily in the classroom and the laboratory.

The following policies have been established:

1. Members of the teaching faculty and students are expected to meet all scheduled classes unless prevented from doing so by illness or other emergencies.
2. The instructor of a course may allow absences equal to the number of class meetings per week. Additional absences will be considered excessive.
3. The instructor may report excessive absences to the Assistant Dean of the College, who may warn the student.
4. If absences continue, the Assistant Dean of the College may remove the student from class with a failing grade."