

PROFESSOR'S CONTACT INFORMATION	
Professor: Dr. Laura K. Gross	Office: Conant 349
Email: laura.gross@bridgew.edu	Phone: (508) 531-2391
Office Hours: Monday and Wednesday 12:15-1:15 and Thursday 9:30-10:30 in CON 349 and by appointment. Changes will be announced on the website and via email.	

LIBRARIANS' CONTACT INFORMATION	
Librarians: Dr. Marcia Dinneen Ms. Cynthia Svoboda	Office: Maxwell Library Room 108 (Dr. Dinneen) Maxwell Library Room 109 (Ms. Svoboda)
Email: mdinneen@bridgew.edu csvoboda@bridgew.edu	Office Hours: By appointment

CALENDAR				
<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
			Dr. Gross's Office Hour 9:30-10:30 CON 349	
Dr. Gross's Office Hour 12:15-1:15 CON 349		Dr. Gross's Office Hour 12:15-1:15 CON 349		
	Class 2:00-3:15 CON 440		Class 2:00-3:15 CON 440	
Dr. Dinneen's and Ms. Svoboda's Office Hours: By appointment				

TEXT & OTHER MATERIALS	
Recommended Text	<i>Introduction to Applied Mathematics</i> by Strang or any other texts that cover the course topics. (See Course Description below.)

Electronic Resources	Blackboard 9. Go to http://blackboard.bridgew.edu , and login with your BSU userid and password. You will see you are enrolled in MATH 416-001 as a Blackboard-9 course. Check our site regularly for course documents and announcements. LaTeX. Go to http://www.overleaf.com to do mathematical word processing. You should save a version daily and download your work as a zip file to back up your work.
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COURSE DESCRIPTION & PREREQUISITES

Description: “Applied mathematics” can mean *mathematics applied to real-world problems*. In practice, applied mathematics spans a wide spectrum of endeavors from the proof of theorems (resembling problems in theoretical mathematics) to the description of processes involving dozens of physical parameters (resembling problems in engineering). Our course will cover a handful of standard physical problems to motivate some mathematical topics that commonly arise in applied mathematics, including line and surface integrals, Fourier analysis, special functions like Bessel functions, and an introduction to partial differential equations.

Because this course is “writing designated in the mathematics major,” we will do the following in accordance with the document “The New Core Curriculum for Bridgewater State University”¹: “Prepare ‘professional quality’ written report(s) on scholarly topic(s) of interest, gather appropriate background information on the topic, access full text, abstracted, and multimedia information in both physical and electronic form, assess the veracity of various sources of information, understand the differences between popular and scholarly information, as well as the differences among primary, secondary, and tertiary sources, understand and apply scholarly norms regarding the appropriate citation and quotation of information sources, prepare texts and accompanying graphics using a word processor and other appropriate software.”

This course will also cultivate particular skills in addition to problem solving that mathematics majors at BSU are expected to have upon graduation. Specifically, students will:

- A. use mathematical terminology and notation precisely and appropriately;
- B. make oral and written presentations appropriate for an intended audience;
- C. locate, analyze, synthesize, and evaluate information about a mathematical topic of interest.
- D. demonstrate understanding of connections between different courses in mathematics, different areas of mathematics, and connections to other disciplines;
- E. demonstrate understanding of techniques employed by practitioners of mathematics such as logical reasoning, electronic computation, and modeling;
- F. recognize and express mathematical ideas embedded in other contexts.
- G. be able to pose and answer valuable questions and undertake independent and collective work in order to expand the boundaries of their knowledge of mathematics;
- H. perceive mathematics as understandable, useful, and powerful;
- I. demonstrate determination and perseverance in order to improve understanding and learn new mathematics;
- J. demonstrate positive self-perception as effective learners and practitioners of mathematics.

You will write and revise at least 15 pages during our 15 weeks together. You will learn to write in a professional style appropriate for students who have almost completed the mathematics major.

¹ Revised and updated in spring 2008 by The Core Curriculum Steering Committee, <http://www.bridgew.edu/corecurriculum/pdf/CurrentCoredocument%206-28-11.pdf> (7 January, 2013).

Prerequisite: A passing grade in MATH 261 (Multivariable Calculus) or transfer credit approved by the Chair of the Mathematics Department.

OTHER CLASS POLICIES	
Attendance	Please arrive on time, stay till the end of class, and avoid unauthorized phone and computer use during class. As you know, class participation will help you do well in the course. If you miss class, talk with a classmate as soon as you can to keep up-to-date on announcements and content.
Problem Sets	Homework problems will be assigned approximately every two weeks, generally on Thursday. Start your homework immediately after it is assigned in order to have ample time to work out difficulties and ask questions.
Writing Assignments	Writing assignments will typically require you to choose a problem on a given problem set, and explain it using complete sentences. Your work should be a free standing document that does not require the reader to look at the original problem statement on your problem set or any of your work submitted on the problem set. You will write approximately three pages in LaTeX (for example at http://www.overleaf.com), which may include background information and a discussion of the wider context for the problem. You will revise your writing assignments based on peer feedback. You will also be asked to revise your writing assignments to include references to scholarly sources such as textbooks. You may be asked to present your writing to the class as part of your grade.
Peer Feedback	You will exchange feedback with your peers (and sometimes with me) on your writing approximately once a week to improve your own understanding, to foster communication with the class, and to improve your and others' writing. The critiques will generally take place on Tuesday. You may be asked to raise a question about your classmate's work or to summarize it. (Your feedback and questions do not count in any way against your classmate's grades. The goal is to improve the writing.) Make-up feedback will not generally be available. If you miss feedback day, you will receive a penalty on any associated work you subsequently submit.
Due Dates	Complete each assignment by the due date. Submit late work at your own risk: Late homework will generally receive a grade of zero unless I have not started grading the assignment yet. At the end of the semester, I will drop your lowest problem-set grade and your lowest writing-assignment grade. The dropped grades may be zeroes from excused absences.
Exams	We will have a midterm, as well as a cumulative final exam. Exams will have a written component similar to that on your homework. They may also involve a writing component. If illness or emergency will prevent you from taking the midterm exam, please call or notify me in advance if possible---Otherwise follow up with me within 24 hours of the missed exam, and provide a written medical excuse or other documentation. Students providing a written medical excuse will have the opportunity to reschedule the exam within a reasonable amount of time. The mandatory final exam will take place during final-exam week. No make-up tests will be available for the final exam in general.
Poster Presentation	You will have the option to create a poster that addresses a researchable question on a scholarly topic related to your writing assignments in the course. It must include an introduction with a referenced literature review or historical information, as well as a

	<p>statement of the purpose of your poster. It must also include descriptions of problem solving methods, a discussion of your findings and, ideally, of current research in the field, as well as conclusions. Include figures, charts and graphs in APA citation style. The target audience for your poster during the development phase is your classmates and instructor. The final version should target the broader BSU faculty-and-student community.</p> <p>Approved posters will be presented at the Student Arts & Research Symposium (StARS) at BSU on Monday, April 27, 2014 during 9:00--3:30. If you choose to present a poster, your semester grade may be raised one notch, for example from an A- to an A.</p>
Academic Honesty	<p>Discuss course work with classmates to help you learn. Do not have another person do any of your work for you, and do not do another person's work. Instead, make suggestions to your classmate, and get suggestions. Then write up the work independently.</p> <p>Do not engage in cheating, plagiarism, other forms of academic dishonesty, or disruptive behavior. The University policy on academic integrity and classroom conduct (http://catalog.bridgew.edu/content.php?catoid=7&navoid=486) from the course catalog will be strongly enforced.</p>
Email Use	<p>I will post announcements through the Blackboard-9 site and may also send you email through Blackboard. You are responsible for checking Blackboard 9 and your email. Be aware that the Office of Academic Affairs holds you responsible for reading your BSU email, and the Information Technology help desk provides support for email to and from your bridgew.edu address.</p>
Calculator Use	<p>Calculators will typically not be allowed on exams.</p>

MORE OUTSIDE HELP	
Blackboard Support	<p>If you have difficulties with Blackboard, you can get BSU technical support by calling (508) 531-2555, emailing itsupport@bridgew.edu, or visiting the Support Services Center in Maxwell Library basement level or Moakley Center (MKC) Room 130.</p>
Walk-in Tutoring	<p>If you wish, you may work with a tutor at no cost at Mathematics Services in the Academic Achievement Center (AAC) on the ground floor of Maxwell Library. See https://my.bridgew.edu/departments/MathServices/SitePages/Home.aspx for more information, including tutors' schedules. (Go to my.bridgew.edu, then Departments, then Math Services.) Let me know if you would like a list of tutors with knowledge of applied mathematics.</p>
Disability Accommodation	<p>In compliance with BSU policy and equal access legislation, I am available to discuss appropriate accommodations that you may require. If you have a diagnosed disability (physical, learning, psychological) that will make it difficult for you to carry out the course work as outlined, or requires accommodations, please advise me during the first two weeks of the course so we may review possible arrangements for reasonable accommodations. Students are encouraged to register with the Disabilities Resources Office in Maxwell Library for disability verification and determination of reasonable academic accommodations.</p>

COURSE GRADES	
Problem sets	30%
Midterm exam	20%
Writing assignments	30%
Final exam	20%

TENTATIVE GRADING SCALE WITH PLUS/MINUS GRADES AT INSTRUCTOR DISCRETION				
A/A- 90-100	B+/B/B- 80-89	C+/C/C- 70-79	D+/D/D- 60-69	F 0-59

DATES AND DEADLINES	
First Day of Classes	Wednesday, January 21
Last day to drop/add classes	Wednesday, January 28
Presidents' Day – No classes	Monday, February 16
UNIVERSITY ON A MONDAY SCHEDULE	Wednesday, February 18
Spring Break – No classes	Monday, March 9—Friday, March 13
STEM Career Expo	Wednesday, March 18, 11:00-1:00
Patriots' Day – No classes	Monday, April 20
Last Day to withdraw from course (with W)	Thursday, April 9
Last Day of Classes	Monday, May 4
Final Exams	Wednesday, May 6 – Tuesday, May 12
Our Final Exam	Tuesday, May 12, 2:00-4:00