

## Syllabus for LB 220 Calculus III - Spring 2012 - R. Bell

**Course:** LB 220 Calculus III

**Instructor:** Robert Bell

**Lectures:** MWF 9:10 - 10:00 a.m. in C-103 Holmes Hall

**Recitation:** Tu 9:10 - 10:00 a.m. in C-103 Holmes Hall

**Required Textbook:**

*University Calculus, Elements with Early Transcendentals* by Joel Hass, Maurice Weir, and George Thomas, ISBN-10: 0-321-53348-8, ISBN-13:978-0-321-53348-7, Pearson Education, 2009.

**Instructor's Office Hours:**

Tuesday 5:30 - 7:30 p.m. in W-32 Holmes Hall,  
Thursday 1:00 - 3:00 p.m. in A-305 Wells Hall,  
and by appointment (please send an e-mail).

**E-mail:** rbell@math.msu.edu (best way to contact me)

**Course Web Page:**

<http://www.math.msu.edu/~robertbe/LB220SP12.html>

**Topics:** This is a course in multivariable and vector calculus. There are four main topics: functions of several variables, multiple integrals, vector valued functions, and vector calculus. The core material of the course belongs to chapters 11-13 of the textbook, plus most of chapter 10 and parts of chapters 8 and 9. Major concepts include partial derivatives, the gradient, the Hessian, Lagrange multipliers, Jacobian determinants, change of coordinates, line integrals, multiple integrals, surface integrals, and various formulations of Stokes' Theorem.

**Grading Criteria.** In general, your work in the course will be graded according to three criteria: the **clarity** of your explanation, the **completeness** of the steps taken to arrive at a solution, and the **accuracy** of the answer. Solutions which are incomplete, unclear, illegible, or contain errors may not receive full credit.

<b>Graded Components</b>		<b>Grading Scale</b>	
Midterm Exams (3)	45%	4.0	$90 \leq x$
Homework	15%	3.5	$84 \leq x < 90$
Quizzes	10%	3.0	$78 \leq x < 84$
Final Exam	30%	2.5	$72 \leq x < 78$
		2.0	$66 \leq x < 72$
		1.5	$60 \leq x < 66$
		1.0	$55 \leq x < 60$
		0.0	$x < 55$

A detailed description of the graded components follows.

**Midterm Exams:** There will be three midterm exams during the semester. These are tentatively scheduled as follows:

- Midterm I    Wednesday, February 15
- Midterm II    Wednesday, March 21
- Midterm III    Wednesday, April 18

Exams are written and completed in class without the aid of the textbook, notes, calculators, or similar materials. Exams last for the entire class period (50 minutes). Each exam is worth 15% of your final grade.

**Homework:** Written homework will be assigned and collected regularly. Homework is due at the start of the lecture (typically due on a Friday). Homework may be turned in late up until the start of the subsequent lecture; however, a late penalty of 20% will be assessed. The lowest two homework scores will not count towards your final grade.

Some assigned problems may require significantly more time to complete than the questions and problems which will typically appear on quizzes or exams. However, reading through your homework gives the instructor an excellent opportunity to assess your overall understanding of the course material as well as your progress towards developing strong analytical problem solving skills. Please do all of the homework assignments: it is the best way to succeed in this course.

Only a select few problems will be graded (usually about half of the problems assigned). Therefore it is especially important that you review your homework when it is returned, and that you compare your work with solutions that are posted on the course web page.

Please feel welcome to ask questions about the homework assignments during lecture, during recitation, during office hours, via e-mail, or via our discussion group. We can discuss solutions to the homework during lecture

as needed.

A score will be assigned to each homework assignment using the criteria below. Problems for which a serious attempt at a solution is not given will count against the completeness. All but the most minor of errors will count against the accuracy. Problems which are not clearly stated, illegible, or disorganized will count against the clarity.

completeness	40%
accuracy	40% (from among graded problems)
clarity	20% (clearly explaining the problem and its solution)

Do not forget to state the problem clearly. Often the most difficult aspect of a mathematical problem is understanding what is being asked. If you do not know how to solve a problem, then at least try to write down the ideas or questions you have so that I can read these.

Collaboration is encouraged on homework assignments, however each student must submit his or her own written solutions to the homework assignments.

**Quizzes:** Quizzes will be administered on a weekly basis during recitation except during weeks in which there is a midterm exam. The lowest two quiz scores will not count towards your final grade. You may make up a missed quiz only if you have missed class due to highly specialized reason (e.g. you are in the hospital or it is a religious holiday). You must contact the instructor in advance (not the learning assistant (LA)) and ask permission if it is a planned event, or you must contact the instructor within 24 hours if it is an unplanned event (health emergency). Any re-scheduled quiz must be arranged with the instructor, not with your LA.

Quizzes are an opportunity to test your current understanding and preparedness for a timed, written exam. Quizzes are written and will typically last between 10 and 15 minutes. You are not permitted to use the textbook, notes, calculators, or similar materials during the quizzes. Solutions to quiz problems will be discussed during class time, either during lecture or during recitation.

**Final Exam:** The final exam is comprehensive. The date and time of the final exam is set by the university. You must take the final exam on the scheduled day at the scheduled time.

*The final exam is on Friday, May 4 from 7:45 a.m. until 9:45 a.m. in C-103 Holmes Hall.*

## Student Responsibilities

### Attendance & Preparation:

- Regular attendance is required.
- Before attending the lecture, read the current sections, or read about the current topics from other available sources (e.g. try a Google search).
- At minimum, attempt to work through the first few examples in each current section, and write down any questions you have.

*How to read mathematics.* You should always have paper and pencil (and eraser!) readily available when reading mathematics. Work through the examples by writing the steps out yourself until it is clear to you that the solution is correct. Once a topic has been introduced in lecture, you should re-read the corresponding sections from the text. You should work on the exercises at the end of these sections until you are proficient.

### Participation:

- Be attentive and stay alert.
- Work effectively with your classmates.
- Take careful notes.
- Ask questions! Don't be shy: we (yes, me too) are all here to learn!

### Homework:

- Start homework assignments early and discuss these with your classmates.
- Write your attempts on scratch paper. Write solutions that you will submit for a grade carefully and neatly.
- When your homework is returned with a grade, compare your solutions to the posted answers and solutions; you might learn a new technique or a more appealing way to think about a topic.

**Recitation:**

- You are required to attend the recitation.
- Prepare for recitation by making a list of specific problems or concepts with which you would like additional help.
- Please keep in mind that if time runs out before your question is answered that you can send questions via e-mail to either the instructor or the LA.

*What is recitation?* Recitation is a problem solving session lead by your Learning Assistant (LA). The recitation will typically consist of a question and answer session followed by an opportunity to solve problems suggested by the LA or your classmates. Additionally, there will usually be a 10 – 15 minute quiz administered at the end of class.

**Utilizing Office Hours:** Please consider bringing your questions to office hours. Both the instructor and LA have regularly scheduled office hours. Office hours are times set aside specifically as an opportunity for you to get additional help. If your schedule conflicts with the scheduled office hours, please make an appointment.

Please do not think of this as an inconvenience to your instructors; additional help is available if you seek it out. However, it is your responsibility to come to office hours only after first making a sincere effort to answer questions on your own. Learning is difficult: work hard, try new ideas, and ask questions. If you do this, you will see definite progress.

**E-mail:** E-mail can be an effective way to obtain more immediate help. When e-mailing your instructors, be sure to state your question clearly. If you are asking about a specific exercise or example in the text, be sure to restate the problem in its entirety since, while it is quite possible that your instructors are awake and online at 10 p.m., it is unlikely that he or she keeps a copy of the text under his pillow!

When addressing e-mail, please include a greeting and sign your e-mail with your first and last name, at least until you are certain the instructor has learned your name.

**Online Discussion Forum:** There is an online discussion group for this course. The details of how to participate will be discussed in lecture. Please feel welcome to discuss problems from the course online. The instructor and LA will also participate and help to facilitate discussions.

**Calculators:** The use of calculators is not be permitted on any of the exams or quizzes. Approximate answers will be penalized when an exact answer can be obtained. However, you are welcome to use your calculator or to write computer programs to test your understanding while studying.

**Students with Disabilities:** MSU provides the Resource Center For Persons with Disabilities (RCPD); URL: <http://www.rcpd.msu.edu/> Please contact the RCPD if you require special accommodations, and then schedule an appointment to meet with the instructor.

**Academic Honesty:** Cheating in any form will not be tolerated and will be reported to the Dean. You will receive a zero on any assignment in which there is a case of cheating. This includes, but is not limited to, plagiarism, failure to give proper citations, and copying another's work. A copy of the Lyman Briggs College academic honesty policy can be found at this URL:

<http://www.lymanbriggs.msu.edu/academics/LBC-Academic-Honesty.pdf>

If you are preparing an assignment and have a question about whether you are adhering to this policy, please ask your instructor.

**Advice:** The best way to learn mathematics is to write down solutions to specific mathematical problems. If you are able to solve most of the assigned problems, then I am confident that you will do very well in the course. But don't limit yourself to the assigned problems; the textbook offers a variety of interesting problems. Challenge yourself! Try working out problems that sound interesting to you. If you want more practice or want more challenging problems, please drop by my office during office hours or make an appointment to meet with me.

If you are falling behind in the course, please seek help ASAP. There is help available during office hours, from your classmates (just ask them!), and from the Math Learning Center (MLC) on the 1st floor of the A-wing of Wells Hall. Additionally, it is not difficult to find private tutors through the MSU community. Did you know that your LA has office hours too? Ask your LA. Their participation in your learning experience is one of the unique aspects of taking calculus through Lyman Briggs College.

I want you to succeed in this course, and I'm here to facilitate this goal. But the burden is upon you to work hard, to set aside realistic amounts of time for study and to seek out help when you need it.

Some final advice: read the book. Then work some problems and read the book again. I cannot emphasize this enough. Read the book.