LB 220 Calculus III, Fall 2013 Course Syllabus

Instructor: Robert Bell
Lectures: MWF 3:00-3:50 p.m. in C-104 HLM
Instructor’s Office: W-32 HLM (basement of West Holmes Hall)
Instructor’s Office Hours: Tu 7:30 - 8:30 a.m., Th noon-2 p.m., and by appointment
Instructor’s e-mail: rbell@math.msu.edu
Recitation: T 3:00-3:50 p.m. in C-104 HLM & in 138 AKR
Learning Assistants (LA) Minie Munasinghe & Tsungai Chibanga
LA’s Office: math help lounge on the 2nd floor of East Holmes Hall
LA’s Office Hours: Th 7:00 - 8:00 p.m. & Tu 6:00 - 7:00 p.m
LA’s e-mail: munasin1@msu.edu & chibanga@msu.edu

Required Course Materials


• WebAssign: You will need to purchase an Enhanced WebAssign access code for the online homework. This code is bundled with the textbook if purchased through the publisher. Otherwise, you can purchase a code when you first login to WebAssign.

Topics

LB 220 Calculus III is a course in multi-variable calculus. There are four major topics: vector-valued functions, functions of several variables, multiple integrals, and line & surface integrals. We will cover most of the topics in chapters 11 through 15 in the textbook.

Grading Criteria

In general, all of your work in the course will be graded according to three criteria: does your work effectively communicate your reasoning and methods? does your work completely answer the question posed? does your work correctly answer the question posed? Solutions which ineffectively communicate your ideas, which omit or incompletely address the questions posed, or which include inaccuracies or errors will be penalized.

<table>
<thead>
<tr>
<th>Graded Components</th>
<th>Grading Scale</th>
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<tbody>
<tr>
<td>Midterm Exams (4)</td>
<td>4.0 ( \leq x &lt; 90 )</td>
</tr>
<tr>
<td>Homework</td>
<td>3.5 ( 84 \leq x &lt; 90 )</td>
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<tr>
<td>Quizzes</td>
<td>3.0 ( 78 \leq x &lt; 84 )</td>
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<tr>
<td>Final Exam</td>
<td>2.5 ( 72 \leq x &lt; 78 )</td>
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<tr>
<td></td>
<td>2.0 ( 66 \leq x &lt; 72 )</td>
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<tr>
<td></td>
<td>1.5 ( 60 \leq x &lt; 66 )</td>
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<tr>
<td></td>
<td>1.0 ( 55 \leq x &lt; 60 )</td>
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<td>0.0 ( x &lt; 55 )</td>
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Exams

There will be four midterm exams during the semester and a comprehensive final exam on the date scheduled by the university.

<table>
<thead>
<tr>
<th>Exam</th>
<th>Date</th>
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<tbody>
<tr>
<td>Midterm Exam I</td>
<td>Wednesday, September 18</td>
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<tr>
<td>Midterm Exam II</td>
<td>Wednesday, October 9</td>
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<tr>
<td>Midterm III</td>
<td>Wednesday, October 30</td>
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<tr>
<td>Midterm IV</td>
<td>Wednesday, November 20</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Thursday, December 12 at 3:00 p.m.</td>
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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).

One fourth of the final exam will be specific to chapter 15, and the remainder is comprehensive, meaning that any topics discussed in the course could appear on the final exam.

Homework
Written and online homework will be assigned and collected on a regular basis. Some homeworks will take the form of a group project. The assignments will be posted on the course webpage (please use the url at the top of this document). Written homework is due at the start of class. Online homework is due according to the dates posted on WebAssign. Late homework is not accepted. The lowest scoring written homework assignment will not count towards your grade. None of the WebAssign homework scores is dropped since the window of time you have to submit answers is generous. Please plan ahead if you expect to have a busy week because of other commitments.

Written Homework Assignments These assignments may require significantly more time to complete than quiz or exam questions. However, grading your written work gives me an excellent opportunity to assess your overall understanding of the course material as well as your progress towards developing strong analytical problem solving skills.

Some of your answers will not be graded; those which are not should checked by you against the posted solutions. We can discuss solutions during lecture as needed.

A score will be assigned to each written homework assignment using the criteria below.

- **completeness** (measures whether all parts were attempted) 40%
- **correctness** (measures accuracy of the solutions) 40%
- **communication** (measures the quality of writing and presentation) 20%

Your submitted work must include a clear and complete statement of each problem that you address. Often the most difficult step in solving a mathematical problem is correctly recognizing the nature of the problem and choosing methods which are likely to be applicable. If you do not know how to solve a particular problem, try to write down the ideas or questions you have about this problem– I will try to respond to your questions and offer suggestions and you will receive some partial credit.

Online Homework We will use WebAssign for online homework. Each assignment is worth an equal amount towards your grade. You can access WebAssign at the following URL: [http://www.webassign.net](http://www.webassign.net)

Quizzes
Quizzes will be administered on a weekly basis by your LA during recitation. The lowest two quiz scores will not count towards your final grade. There are no make-up quizzes since there are two dropped quizzes.

Quizzes are an opportunity to test your preparedness for a timed, written exam. Quizzes are written and will last 10 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.

Ungraded Work
You will not be successful in this course if you only complete the graded assignments. You must, in addition, regularly test your understanding by attempting exercises in the textbook and by attempting problems which we work on as a class during lecture and recitation. You will be provided with a comprehensive list of recommended textbook exercises that you should be able to solve if you have mastered the material. If you have not mastered the material, then you should not expect to achieve a high exam score. Moreover, if you are are unable to solve at least half of the recommended textbook exercises without making multiple or serious errors, then you should not expect to receive a passing grade on exams.
Calculator Policy
The use of calculators is not permitted on any of the exams or quizzes. Moreover, approximate answers will be penalized when an exact answer can be obtained. However, you are welcome to use your calculator or a computer to test your understanding while studying outside of class or working on homework assignments. If you use such devices to solve written homework assignments, be certain to write your solution in such a way that a calculator is not needed to read your solution.

Students with Disabilities:
MSU has a Resource Center For Persons with Disabilities (RCPD): [http://www.rcpd.msu.edu/](http://www.rcpd.msu.edu/) Please contact the RCPD if you require special accommodations, and then schedule an appointment to meet with the instructor and accommodations can be provided.

Academic Honesty
Cheating in any form will not be tolerated and will be reported to the Dean of the College. 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](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. If you work on an assignment with other students, you must give credit your collaborators.

Student Responsibilities
**Attend class & arrive prepared.** Regular attendance is required. Before attending the lecture, read the current textbook section. At minimum, attempt to work through the first two examples in each current section, and write down any questions you have. Work through the recommended textbook exercises for the current sections and keep a notebook to record your progress.

**Read outside of class.** You should always have paper and pencil (and eraser!) readily available when reading mathematical text. 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. I encourage you to work with other students and to help one another succeed in the course.

**Participate in class.** Be attentive and stay alert. Work with your classmates, especially those adjacent to your seat. Take careful notes on those topics which are unfamiliar. Ask questions! Don’t be shy: we—including yours truly—are all here to learn!

**Complete the homework assignments.** Start homework assignments early and discuss these with your classmates. Write your attempts to solve the homework on scratch paper, especially when working on online homework problems. If you are working on a written homework assignment, re-write—carefully and neatly—your solutions according to the requested format. When your homework is returned with a grade, compare your solutions to the posted answers and solutions; you might learn a new technique or another way to understand a concept.

**Work through the recommended textbook exercises.** Attempt these problems and test your understanding. Ask questions about these exercises. Ask your classmates, your LA, your instructor, your roommate, your lab partner, etc. Part of the fun of mathematics is that you can discuss mathematical problems with your others and together you can discover a solution.

**Attend 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 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. Additionally, there will usually be a 10 minute quiz administered at the end of each recitation.

Utilize 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.

Send questions via e-mail. When e-mailing your instructor, be sure to state your question clearly. If you are asking about a specific exercise or example in the text online, be sure to restate the problem in its entirety.

Final Thoughts

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 here in the Holmes Hall math help room (2nd Floor of East Holmes Hall– your LA and other LAs will hold office hours here). Additionally, the Mathematics Department hosts the Math Learning Center (MLC) in Wells Hall and in some of the neighborhood communities on campus.

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 textbook. Then work some problems and read the textbook again. I cannot emphasize this enough. Learn to read the textbook. It is the key to being able to learn and apply mathematical techniques to problems you encounter outside of this class and down the road.
Grading of Homework. Each written homework assignment and each individual WebAssign assignment will count equally towards the homework component (20%) of your final grade. Thus, although one WebAssign homework might be worth 72 points and another worth 42, both assignments have equal weight. This is achieved by converting your score to a percentage. For instance, if you score 71/72 on one assignment and 37/42 on another, then you have two scores: a 98.6% and an 88.1%.

On a written homework assignment you might score 9/10 or 90.0%. At the end of the course, I will take all of these percentage scores and compute the average (out the total number of WebAssign and written homework assignments). This will be your score for the homework component of your final grade.

Dropped Scores. Your lowest score on the written homework assignments will not count towards your grade. Additionally, I will not count your lowest WebAssign homework.

There is one bonus WebAssign homework (the last one on sections 15.6 and 15.7). The bonus assignment will act as another assignment which can replace your lowest WebAssign homework (assuming you complete the bonus homework and its score is greater than your lowest homework score).

Summary. There are 15 WebAssign homeworks and 1 bonus WebAssign homework. The lowest of the 15 will be dropped. If you complete the bonus homework and the percentage score is greater than your lowest score (from among your 14 best scores), it will replace the lowest score. In either case, your 14 best WebAssign homeworks (out of 15 or 16) will count towards your grade.

There are 5 written homeworks (usually some form of group project). The lowest score will be dropped.

In the end I will use your best \(14 + 4 = 18\) homework scores (WebAssign + written) and compute their average to obtain the homework component of your grade. This component counts as 20% of your final grade.