Title: Calculus II

Course Description: Further application of integration and techniques of integration. Improper integrals. Infinite series including Taylor series and representation of functions.

Prerequisite: MATH 152 (Calculus I), with a grade of C– or higher.

Instructor: F. Latour

Office Phone: 832-2855

Email: latourfre@ccsu.edu

Office: Marcus White 117

Office Hours:

- Mondays: 1:30–2:30pm
- Tuesdays: 12:30–3pm
- Wednesdays: 1:30–3pm
- Other times by appointment.


Class Meeting Times: Mondays and Wednesdays, 8:00am–9:40am in room 103, Robert Vance Academic Center.

Course Requirements: Attend and participate in class regularly; complete homework assignments; take quizzes and tests, as scheduled. A general rule for any college course is that you are expected to put in at least 2 hours of work outside of class for every hour in class.

Calculator Use: The recommended calculator for this course is the TI-83+. Similar calculators such as the TI-83, TI-84, TI-84+ and TI-86 are also acceptable and may be used for examinations. Calculators with a symbolic capability such as the TI-89 and TI-92 are not allowed on examinations. If you are wondering whether your calculator is acceptable, please ask the instructor.

Cell phones and other communication devices: Must be turned off and put away at all times during class. No texting allowed in class.
Course Objectives: After taking this course, the student should be able to:

1) Use definite integrals to compute quantities such as volumes, lengths and areas;
2) Evaluate indefinite integrals by choosing an appropriate technique of integration (u-substitution, integration by parts, trigonometric identities, trigonometric substitution, partial fractions, etc.) and applying it correctly;
3) Rewrite improper integrals as limits, evaluate them, and determine whether they converge or diverge;
4) Determine whether a sequence converges or diverges, and if possible, what it converges to;
5) Determine whether an infinite series converges or diverges, using an appropriate test (integral test, comparison tests, ratio test, alternating series test, etc.), and if possible, what it converges to;
6) Find the Maclaurin and Taylor series of a function, as well as their radius of convergence;
7) Sketch conics sections, as well as the graphs of polar equations;
8) Use the basic tools of calculus to solve problems relating to graphs of polar equations.

Evaluation

Minimum averages have been established for each of these grades:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Minimum Average</th>
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<tbody>
<tr>
<td>B+</td>
<td>87%</td>
</tr>
<tr>
<td>C+</td>
<td>77%</td>
</tr>
<tr>
<td>D+</td>
<td>67%</td>
</tr>
<tr>
<td>A</td>
<td>93%</td>
</tr>
<tr>
<td>B</td>
<td>83%</td>
</tr>
<tr>
<td>C</td>
<td>73%</td>
</tr>
<tr>
<td>D</td>
<td>63%</td>
</tr>
<tr>
<td>A−</td>
<td>90%</td>
</tr>
<tr>
<td>B−</td>
<td>80%</td>
</tr>
<tr>
<td>C−</td>
<td>70%</td>
</tr>
<tr>
<td>D−</td>
<td>60%</td>
</tr>
</tbody>
</table>

The average for the course will be based on the following weights:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>12%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>17%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>17%</td>
</tr>
<tr>
<td>Exam 3</td>
<td>17%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>27%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Schedule of Important Dates

Exam 1: Wednesday, February 17, in class
Exam 2: Wednesday, March 16, in class
Exam 3: Wednesday, April 20, in class
Final Examination: Wednesday, May 11, 8am–10am

Please note: The final examination for this course is cumulative. It covers the entire course.

Quizzes will be on Wednesdays (other than exam days), starting on the 27th of January. Usually, the quiz will be based on the homework problems that are due on the day it is given (exceptions will be announced in class).

Homework will normally be due on Wednesdays of weeks that do not have an exam and on Mondays of weeks that have an exam. You are allowed to collaborate with other students on homework, but the solutions that you submit must be your own. Simply copying another student’s work (or allowing another student to copy your work) is considered cheating and is not acceptable.

Occasionally, there may be changes to the course schedule (for example, if classes are cancelled because of bad weather). Changes will be announced in class.
University Policies:

1. You must take the final examination at the time specified in the course selection book: **Wednesday, May 11, 8:00am–10:00am.**

2. If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. My telephone numbers and office hours are given above.

I will need a copy of the accommodation letter from Student Disability Services in order to arrange your class accommodations. Contact Student Disability Services, room 101, Emma Willard Hall, if you are not already registered with them. Student Disability Services maintains the confidential documentation of your disability and assists you in coordinating reasonable accommodations with your faculty.

3. In the event of a weather emergency which requires curtailment or cancellation of classes, listen to WTIC (1080 AM) or call (860) 832-3333 for the “general snow message.”

4. The last day to withdraw from a course is **Monday, April 18.** Approvals for withdrawal are not required; however, it is strongly recommended that students consult with their instructor and academic advisor prior to deciding to withdraw. Cessation of attendance, notice to the instructor, or telephone calls to the Enrollment Center are not considered official notice of a student’s intention to drop the course.

After April 18 withdrawals are allowed only under extenuating circumstances and require approval of the course instructor and of the Chair of the Department of Mathematical Sciences. Poor academic performance is not considered an extenuating circumstance.

5. All students are expected to demonstrate integrity in the completion of their coursework. Academic integrity means doing one’s own work and giving proper credit to the work and ideas of others. It is the responsibility of each student to become familiar with what constitutes academic dishonesty and plagiarism and to avoid all forms of cheating and plagiarism. Students who engage in plagiarism and other forms of academic misconduct will face academic and possibly disciplinary consequences. Academic sanctions can range from a reduced grade for the assignment to a failing grade for the course. From a disciplinary standpoint, an Academic Misconduct Report may be filed and a Faculty Hearing Board may impose sanctions such as probation, suspension or expulsion.

For further information on academic misconduct and its consequences, please consult the Student Code of Conduct ([http://www.ccsu.edu/StudentConduct](http://www.ccsu.edu/StudentConduct)) and the Academic Misconduct Policy ([http://www.ccsu.edu/AcademicIntegrity](http://www.ccsu.edu/AcademicIntegrity)). This policy is rigorously enforced by the Department of Mathematical Sciences.

Resources Available:

1. If you need help, take advantage of your instructor's office hours. Do not wait until just before the first test to do so.

2. The Learning Center is located in Room 101, Emma Willard Hall. Free tutoring is available. A schedule for hours the Center is open will be posted soon after the beginning of the semester.

3. Form a study group with other students in your section. Explaining solutions to homework problems to each other is a good way to learn.

4. A list of private tutors for hire is available in the math department office, Room 128, Marcus White; (860) 832-2835.
Course Policies:

Late Homework: Written homework that is handed in late will be penalized as follows:

• Homework that is at least one day but fewer than seven days late: penalty is 15% of the points earned on the homework.
• Homework that is at least seven days but fewer than fourteen days late: penalty is 30% of the points earned on the homework.
• Homework that is at least fourteen days late but is handed in on or before the last day of the semester: penalty is 50% of the points earned on the homework.
• Homework that is handed in after the end of the semester’s final exams will not be graded.

Online homework that is completed after 11:59pm on the due date will be penalized 20%; the penalty will only apply to answers that were submitted after the deadline. Online homework that is completed after the end of the semester’s final exams will not count.

Missing Class: It is your responsibility to learn the material that you missed if you are absent from class. There are no make-up quizzes; if you have a valid excuse for missing a quiz, you may be given an “excused absence”, at the instructor’s discretion. An “excused absence” means that your missed quiz will be excluded from your quiz average (and thus will not count against your grade).

Missing Examinations: Missing an examination is a very serious matter.

If you know in advance that you will have to miss an examination, you MUST inform your instructor at least two weeks before the examination. In that case, you will normally be offered an alternate time for the examination.

If you miss an examination because of an emergency, you need to contact your instructor as soon as possible, either in person or by e-mail, within 24 hours of the beginning of the examination. DO NOT wait until the next class to contact your instructor!

Academic dishonesty (“cheating”): The standard penalty for academic dishonesty is a grade of 0% on the homework, quiz or examination. The following are examples of academic dishonesty:

• Copying another student’s homework solutions;
• Copying a tutor’s homework solutions;
• Using, in any way, an instructor’s solutions manual (an instructor’s solutions manual is for use by your instructor only, and not by students or tutors);
• Copying solutions from the internet;
• Bringing a formula sheet to an examination (whether or not you plan on using it);
• Writing formulas on your hand, calculator, etc.;
• Storing programs, notes or formulas or any other course-relevant information in your calculator’s memory.

If you are thinking of doing anything that you think is ethically ambiguous, you should ask your instructor if it is cheating. There is no penalty for asking!

The following are NOT cheating:

• Getting help from another student on homework, or working with another student on homework problems, provided that each student writes his/her solutions individually;
• Getting homework help from tutors (Learning Center or private tutors), provided that you write your solution by yourself;
• Getting homework help from your instructor or from another professor, provided that you write your solution by yourself.
Course Material:

I am planning on covering the material contained in the following sections of the textbook:

**Chapters 2–5: Review of concepts that may not have been covered in Calculus I**
- 5.5 Indefinite Integrals and the Substitution Method
- 5.6 Definite Integral Substitutions and Area Between Curves

**Chapter 6: Applications of Definite Integrals**
- 6.1 Volumes Using Cross-Sections
- 6.2 Volumes Using Cylindrical Shells
- 6.3 Arc Length
- 6.4 Areas of Surfaces of Revolution
- *6.5 Work
- *6.6 Moments and Centers of Mass

**Chapter 7: Integrals and Transcendental Functions**
- 7.1 The Logarithm Defined as an Integral
- *7.2 Exponential Change and Separable Differential Equations
- *7.3 Hyperbolic Functions

**Chapter 8: Techniques of Integration**
- 8.1 Integration by Parts
- 8.2 Trigonometric Integrals
- 8.3 Trigonometric Substitutions
- 8.4 Integration of Rational Functions by Partial Fractions
- *8.5 Integral Tables and Computer Algebra Systems
- *8.6 Numerical Integration
- 8.7 Improper Integrals

**Chapter 9: Infinite Sequences and Series**
- 9.1 Sequences
- 9.2 Infinite Series
- 9.3 The Integral Test
- 9.4 Comparison Tests
- 9.5 Absolute Convergence; The Ratio and Root Tests
- 9.6 Alternating Series and Conditional Convergence
- 9.7 Power Series
- 9.8 Taylor and Maclaurin Series
- 9.9 Convergence of Taylor Series
- 9.10 The Binomial Series and Applications of Taylor Series

**Chapter 10: Parametric Equations and Polar Coordinates**
- 10.1 Parametrizations of Plane Curves
- 10.2 Calculus with Parametric Curves
- 10.3 Polar Coordinates
- 10.4 Graphing Polar Coordinate Equations
- 10.5 Areas and Lengths in Polar Coordinates
- A.4 Conic Sections
- *10.6 Conics in Polar Coordinates

*The sections marked with an asterisk are optional and will be covered if time permits.*
To register for **MATH 221-03**:

1. Go to [www.pearsonmylabandmastering.com](http://www.pearsonmylabandmastering.com).
2. Under Register, select **Student**.
3. Confirm you have the information needed, then select **OK! Register now**.
4. Enter your instructor’s course ID: **latour34195**, and **Continue**.
5. Enter your existing Pearson account **username** and **password** to **Sign In**.
   - You have an account if you have used a Pearson product, for example: MyMathLab, MyITLab, MyPsychLab, MySpanishLab or Mastering, such as MasteringBiology.
   - If you don’t have an account, select **Create** and complete the required fields.
6. Select an access option.
   - Use the access code that came with your textbook or that you purchased separately from the bookstore.
   - Buy access using a credit card or PayPal account.
   - If available, get 14 days temporary access. (The link is near the bottom of the screen.)
7. From the confirmation page, select **Go To My Courses**.
8. On the My Courses page, select the course tile **MATH 221-03** to start your work.

**To sign in later:**

1. Go to [www.pearsonmylabandmastering.com](http://www.pearsonmylabandmastering.com).
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password**, and **Sign In**.
4. Select the course tile **MATH 221-03** to start your work.

**To upgrade temporary access to full access:**

1. Go to [www.pearsonmylabandmastering.com](http://www.pearsonmylabandmastering.com).
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password**, and **Sign In**.
4. Select **Upgrade access** from the course tile **MATH 221-03**.
5. Enter an access code or purchase access with a credit card or PayPal account.

For a registration overview, go to [www.pearsonmylabandmastering.com/students/get-registered](http://www.pearsonmylabandmastering.com/students/get-registered). Scroll down to **Need a little help?** and select a video.