MATH 2415 - CALCULUS III - BLINN COLLEGE

INSTRUCTOR: Ruth Seidel
Office: L228 (Library Building)
Office hours: MW 2:00 - 3:00 pm, 5:30 - 6:00 pm
TT 1:30 - 5:00 pm
MTWT after 6:00 pm and Fridays by appointment only

CONTACT INFORMATION:

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e-mail: rseidel@blinn.edu

During the week (Monday - Thursday), response to e-mail messages will take at least 48 hours. Messages left on voice-mail usually receive a response within 24 hours. If you leave your phone number in a voice-mail message, please speak the number slowly and then repeat it to insure that I can return your call. E-mail and voice-mail messages left any time after 1:00 pm on Friday through Sunday evening will receive no response until Monday evening. Information concerning grades cannot be given out over the phone or by e-mail. If you miss class for any reason and wish to obtain information concerning class activities or homework assignments, you must speak with me in person, not by phone or by e-mail.

COURSE INFORMATION

1. Course Description: Multivariable calculus; vector calculus, cylindrical and spherical coordinates, partial differentiation, directional derivatives and the gradient, multivariable integration, line and surface integrals, Green's theorem, Stokes' theorem, divergence. Four class hours per week. Credit: Four semester hours.

2. Prerequisites: MATH 2414 with a grade of ‘C’ or better.

3. Core Course: This is a Core Course in the 42-hour Core of Blinn College. As such, students will develop proficiency in the appropriate Intellectual Competencies, Exemplary Educational Objectives and Perspectives. The URL for the Blinn College Core Curriculum web site is www.blinn.edu/corecurriculum.

4. Course Objectives: The student should perform at a 70% or better average on homework, lab, quizzes and exams covering the topics listed in the course description and those topics included in the daily schedule.

5. Course Content: Vectors and Vector-Valued Functions
   Functions of Several Variables
   Multivariable Integration
   Vector Calculus

TEXT: Briggs, William, and Cochran, Lyle, Calculus Early Transcendentals, Pearson Addison Wesley
**EXAM SCHEDULE**

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All material and dates are subject to change.

**GRADING CRITERIA**

- 5 exams @ 80 points each = 400 points
- Homework, work sheets, quizzes = 100 points (3 lowest grades dropped)
- Computer homework = 80 points
- Final (comprehensive) = 170 points
- Total = 750 points

Tentative grade assignments:
- A: 675 - 750 pts
- B: 600 - 674 pts
- C: 525 - 599 pts
- D: 450 - 524 pts
- F: less than 450

**GRADING POLICIES**

1. All exams and quizzes must be taken in class during the regularly scheduled class time. Unless otherwise stated in class, students will be allowed 75 minutes for major exams and no more than 10 minutes for quizzes.

2. All exams will be closed book and closed notes. On exams and quizzes, students will be held responsible for all material covered in the text assignments, class lectures, MyMathLab assignments and computer assignments. Samples of exams given during previous semesters are available online at *ecampus*.

3. Grading on exams, quizzes, homework, and plotting assignments will be based on the work shown for each problem. Partial credit may be assigned at my discretion and only if I feel that a sufficient understanding of the material has been demonstrated by the student.

4. All submitted papers must be neat and legible and follow the format discussed in this syllabus. If I cannot read your writing, or if the sequence of steps required to solve a problem is incomplete or disorganized, you will receive zero credit for the problem, regardless of whether the answer is correct or not.
5. Each student is responsible for looking over all returned, graded assignments. If the student believes that an error has been made on any grade for a homework assignment, Maple assignment, quiz or exam, the student has one week from the day on which the paper is returned to the class to identify these errors or problems to the instructor. If the student does not discover or chooses not to discuss the grading of any paper within the one week period, then the grade will stand and will not be changed under any circumstances.

**CALCULATOR POLICY AND REQUIRED SUPPLIES**

1. No calculators may be used on exams or quizzes but the student may use a graphing calculator in this course. A *TI*-83 will be used in class when required. Students may use other graphing calculators, however each student is responsible for learning how to operate them. Symbolic calculators such as the *TI*-89 and *TI*-92 are not allowed.

2. An access code or valid user ID for MyMathLabPlus, the online homework component for the course.

3. The course packet (available in the *copy center*, first floor of the *G* building), a stapler, and a ruler with inch and centimeter scales are required. A packet of 3 x 2 1/2 inch index cards (one or two cards required per class period) and a red pen are required. A three-ring binder or folder is suggested.

4. Additional material for this course, including textbook, solutions manual, and other items, are available online or in the library at the reserve shelf. All reserve material must be used in the library.

5. Free plotting package: CalcPlot3D online plotter at [http://web.monroecc.edu/calcNSF/](http://web.monroecc.edu/calcNSF/)

**CLASS ATTENDANCE**

1. The College District believes that class attendance is essential for student success; therefore, students are required to promptly and regularly attend all their classes. Each class meeting builds the foundation for subsequent class meetings. Without full participation and regular class attendance, students shall find themselves at a severe disadvantage for achieving success in college.

2. If a student has one week’s worth of absences (2 class days) during the semester, he/she will be sent an e-mail by the College requiring the student to contact his/her instructor and schedule a conference immediately to discuss his/her attendance issues. If the student accumulates a total of two weeks worth of absences (4 class days), he/she will be administratively withdrawn from class.
3. The only excused absences are college sponsored activities, religious holy days, military service, and a high school student representing the independent school district at an official institutional function. The student must notify the instructor in writing not later than the 4th day of the semester concerning the specific date(s) that the student will be absent for any religious holy day(s). If a student must miss a class, it is the student’s responsibility to learn the missed material -- it will not be covered again during class time.

4. Illness and/or emergency (even with a doctor’s note) does not constitute an excused absence: I retain the right to determine whether an absence is authorized as far as make-up work is concerned, and will note in writing if the absence is authorized (see make-up policy). If a student must miss a class, it is the student’s responsibility to obtain all class notes from a fellow student and learn the missed material. Once a student has obtained and reviewed the class notes from the missed class day he/she may use scheduled office hours to receive additional help with the missed material.

5. Any student who chooses to “Q-drop” the course must withdraw by contacting the enrollment services office on or before April 12, 2013. Any student dropping after this date will receive a grade of “QF”. In order to receive a “QF” the student must drop the class by 5:00 pm, May 1, 2013.

6. The roll will be taken every class meeting at the beginning of class and/or at the end of class. Any student who is not in attendance at both the beginning of class and at the end of class when roll is taken will be counted as absent. Any student who misses class will still be held responsible for all the material covered at that class meeting, including all assignments given out that day. All changes to the syllabus and daily schedule will be announced during regularly scheduled class times or posted online. Without exception, all students are held responsible for every announced change.

7. If you leave before class is dismissed or leave the classroom at any time during the lecture period or during group work, it will be counted as a zero grade on the daily in-class exercise, homework, and quiz grade unless you can show me that the reason for leaving class was an emergency.

8. Use of cell phones is prohibited in the classroom. If you use your cell phone any time during the class period, or leave the classroom to use your cell phone, you will receive a zero grade on the daily in-class exercise, homework, and quiz grade. In addition, since you are not fully participating in class while using a cell phone, you will be counted as absent on that day. If four such violations of cell phone use are recorded, you will be dropped from the course.
9. Habitual tardiness will affect your attendance grade. If you come in after roll is taken, you will be marked as absent unless you speak with me immediately after class. If you are less than 5 minutes late and you speak to me before I leave the classroom, you will be marked as “tardy”. Three tardies will constitute one absence. If you are more than 5 minutes late, it is your responsibility to convince me that you should not be marked as absent. If you do not discuss the reason for being late before I leave the classroom, you will be marked as absent.

MAKE-UP POLICY

1. For missed exams, a single, comprehensive make-up exam will be given for absences that may include, but are not limited to, official Blinn activities, illness (the student must be under a doctor’s supervision), and death in the family. I retain the right to determine whether an absence is authorized as far as the make-up exam is concerned. An absence on the day of an exam will result in a grade of zero for that exam regardless of the reason unless the following procedure is completed:

Any student who is absent on the day that an exam is administered and who wishes to receive a nonzero grade must: (i) speak with me directly, either in person or by phone within 24 hours from the time that the exam is officially scheduled (a voice-mail or e-mail message is not acceptable); and (ii) provide a written, verifiable explanation of the absence within two class days from the scheduled date of the exam.

Upon verification, the student will be informed in writing if permission to take the comprehensive make up exam is granted. The grade made on the comprehensive exam will then be used as the make up grade for the missed exam.

2. No student will be allowed to make-up more than one missed exam.

3. Short quizzes, homework, and in-class work will be administered frequently. Since three of the lowest daily homework/quiz grades will be dropped, no make-ups for these will be given under any circumstances. A missed quiz, homework assignment, or in-class work sheet due to an absence receives a grade of zero and may be used as one of the “dropped” grades. Course packet homework that is submitted after the assigned date and time that it is due will not be graded and will receive a grade of zero.

4. Unless otherwise stated, course packet homework assignments will be due at the beginning of the class period. This means that all assignments must have been placed on the front desk by the time I enter the classroom. I will not ask for these assignments; it is the student’s responsibility to be sure that they are submitted on time. Assignments submitted after class has started will not be graded and will receive a grade of zero, regardless of circumstances.
5. Any computer plotting assignment that is submitted after the assigned date and time that it is due will be accepted but will be considered “late” and 10% of the total possible points will be deducted. For every additional 24 hour period that the assignment is late (including weekends), 10% of the total possible points will be deducted from the assignment grade. A lack of planning on the student’s part does not constitute a valid excuse for failing to turn an assignment in on time. Problems with computers, printers, disks, copiers, etc. are emergencies that occur frequently. The student should keep this in mind when allotting time for the completion of an assignment and plan accordingly. A lack of planning on the student’s part does not constitute a valid excuse for failing to complete an online assignment on time.

6. Scheduled excused absences do not excuse a student from turning in assignments on time. In these cases, assignments should be submitted early, or arrangements made to have them delivered on time. Once an assignment is made, every student is responsible for due dates; I will not be responsible for reminding you when assignments are due.

7. The due dates and times for all MyMathLabPlus assignments will be given on the web site only, not during class time. Students are responsible for keeping track of all MyMathLab problem assignments and their due dates by checking their account frequently. Problems with computers, printers, disks, copiers, etc. are emergencies that often occur. The student should keep this in mind when allotting time for the completion of an assignment and plan accordingly. A lack of planning on the student’s part does not constitute a valid excuse for failing to complete an online assignment on time.

CLASSROOM POLICY

1. Please do not make a habit of being late or make a habit of taking breaks (leaving and entering the classroom) during the lecture period. It disrupts class and is a disservice to your class mates.

2. If a quiz or exam has already begun and you come in late, you will not be allowed to take or make up the quiz, nor will you be allowed to make up the time on the exam.

3. Please ask questions if you do not understand what is being discussed during the lecture. If you need clarification on a particular topic, the chances are someone else in the class does as well. The only dumb question is the one that you know you should have asked and didn’t. In general, questions should be directed to the instructor and not other students. Discussions between students that occur during the lecture are distracting to fellow students and may prevent them from deriving maximum benefit from the lecture.
4. All students are expected to behave courteously to both instructor and fellow students. Students displaying disruptive behavior such as talking loudly and out of turn, making rude or unwarranted comments, or holding conversations with other students during lecture, will be required to meet with me after class to discuss appropriate classroom behavior.

5. Any student’s pager or phone that goes off during a quiz or exam will result in a grade of zero on the quiz (usually a loss of five points) and will be penalized one letter grade (usually a loss of eight points) on the exam.

6. No food, drink or tobacco products are allowed in the classroom.

7. Turn OFF all cell phones, pagers, or other electronic devices (PDAs, iPods, MP3 players, Walkmans, PSPs, Gameboys, laptops etc.) and put them out of sight BEFORE entering class:
   a. This does not mean to turn your phone on "silent" or "vibrate."
   b. You may not take any of these devices out while in the classroom. You may not have them out before class or during any breaks.
   c. You may not receive a call during class (even if you excuse yourself), you may not check to see if you have received a call, and you may not text-message.

If any electronic device is taken out while you are in the classroom, you will receive a grade of zero for the daily work, the homework submitted that day, any quiz, or test. In addition, the violation will count as one of the four absences you are allowed for the semester.

**SCHOLASTIC DISHONESTY**

1. Students caught cheating on any assignment, quiz or exam in this course will be assessed a penalty that will range in severity from an F (or zero) on the particular activity involved to an F for the course.

2. For the purpose of this course, cheating will be defined as (but not limited to) access or use of unauthorized material during exams and quizzes, collaboration between students during exams, quizzes, and assignments for which group work is not allowed, frequent perusal of another student's work during exams and quizzes, copying other student's work or allowing other students to copy your work on any assignment, quiz or exam, and having unauthorized programs or other information stored on calculators when these calculators are accessible during an exam or quiz.
3. Students who cheat and students who facilitate cheating when they allow other students access to their own work when it is not allowed will be subject to the same penalty.

4. Any student assigned an F for cheating has one week from the time that the assignment, quiz or exam is returned to the class to dispute the grade. After one week, it will be assumed that the student has accepted the grade, and no changes will be made in the grade. Low grades received as a penalty for cheating will not be dropped or replaced.

**CIVILITY STATEMENT**

Members of the Blinn College community, which includes faculty, staff and students, are expected to act honestly and responsibly in all aspects of campus life. Blinn College holds all members accountable for their actions and words. Therefore, all members should commit themselves to behave in a manner that recognizes personal respect and demonstrates concern for the personal dignity, rights, and freedoms of every member of the College community, including respect for College property and the physical and intellectual property of others.

Students may be asked to leave the classroom because of uncivil behavior. If a student is asked to leave the classroom because of uncivil behavior, the student may not return to that class until he or she arranges a conference with the instructor: it is the student's responsibility to arrange for this conference.

**ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES**

Blinn College is dedicated to providing the least restrictive learning environment for all students. Support services for students with documented disabilities are provided on an individual basis, upon request. Requests for services should be made directly to the Office of Disability Services serving the campus of your choice. For the Bryan campus, the Office of Disability Services (Administration Building) can be reached at (979)209-7251. The Brenham, Sealy and Schulenburg campuses are served by the Office of Disability Services on the Brenham campus (New Administration Building Room 104) and can be reached at (979)830-4157. Additional information can be found at [www.blinn.edu/disability](http://www.blinn.edu/disability).

In order to receive accommodations on exams or assignments, students must provide an accommodations request from Disability Services, make an appointment to meet with the instructor during posted office hours, and discuss what accommodations are appropriate for the course. Proper documentation should be provided to Disability Services so that this can be done in a timely manner. Accommodations are not retroactive and no accommodations will be granted until all paper work is completed.
*Student Learning Outcomes: At the completion of the course, the student will:

On a written examination, the student will be able to add and subtract vectors, find dot and cross products of vectors, and use these operations in solving application problems.

On a written examination, the student will be able to use vector products to aid in finding areas, parametric equations for lines, equations for planes, and distances from points to lines.

On a written examination, the student will be able to find velocity and acceleration vectors, unit tangent vectors, unit normal vectors, and curvature for space curves.

On a written examination, the student will be able to find partial derivatives of functions, use the chain rule, find the derivative of f at point P in the direction of vector A, and find the direction in which f increases and decreases most rapidly.

On a written examination, the student will be able to find equations for tangent planes and lines normal to surfaces.

On a written examination, the student will be able to test given functions for saddle points, local maximum, and local minimum.

On a written examination, the student will be able to solve stated problems using partial derivatives, and use Lagrange multipliers subject to given constraints.

On a written examination, the student will be able to evaluate double integrals, find areas of regions bounded by curves, find volumes bounded by geometric surfaces using triple integrals, and find masses and moments using Cartesian, cylindrical, and spherical coordinates.

On a written examination, the student will be able to evaluate integrals along given curves, find the work done by a force along a given path, evaluate flow integrals of a given vector field, and find circulation and flux of a field around closed paths.

On a written examination, the student will be able to apply Green's theorem, Stokes' theorem, and the Divergence theorem.

*Student learning outcomes are state mandated. This course will cover the essentials from these topics.
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11.1 Vectors in a Plane
11.2 Vectors in Three Dimensions
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**MAJOR EXAMINATION 1**

**Objective 2:**

11.6 Calculus of Vector-Valued Functions
11.7 Motion in Space
11.8 Length of Curves
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**Objective 3:**

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**Objective 4:**

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**Objective 5:**

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13.6 Integrals for Mass Calculations
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**MAJOR EXAMINATION 5**

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**COMPREHENSIVE FINAL**