

MAT 272 Calculus with Analytic Geometry III - FALL 2017

Location/Time: ...

LECTURE #: ...

Session C: ...

Disclaimer: All items on this syllabus are subject to change. The instructor reserves the right to modify it (including the dates of the tests) to meet the needs of the class. Any in-class announcement, verbal or written, is considered official addendum to this syllabus. It is the student responsibility to attend class regularly and to make note of any change.

| | |
|-------------|----------------------|
| INSTRUCTOR: | OFFICE: |
| E-MAIL: | PHONE: |
| WEB PAGE: | Office Hours: |

Course description: Vector-valued functions of several variables, multiple integration, and introduction to vector analysis.

Prerequisites: MAT 266 or MAT 271 (Calculus II) or its equivalent with a grade C or better.

Textbook: Calculus, Early Transcendentals, by Briggs, Cochran & Gillett, 2e (Pearson)

Calculators: A graphing calculator (e.g. TI84 or Casio CFX-9850GB Plus) is recommended. Graphing calculators which perform symbolic manipulation (e.g. TI89, TI92, Casio FX2 or 9970G) will not be allowed for tests or quizzes.

COURSE POLICIES: Students are responsible for assigned material. Students are responsible for material covered in class whether or not it is in the text. Working regularly on assigned problems and **attending class** is essential to success. Expect to spend at least 6-10 hours weekly on homework. You are expected to read the text, preferably before the material is covered in class.

Online Homeworks on webwork are to be submitted by the due dates. The website for the Online homeworks is: Webwork.asu.edu

Make-up exams are given at the discretion of the instructor and only in case of documented emergency. In any case, no make-up exams will be given unless the student has notified the instructor before the test is given. Messages may be left in my office, at the main office (965-3951) or through email (recommended).

ACADEMIC DISHONESTY!:

In the “Student Academic Integrity Policy” manual, ASU defines “Plagiarism [as] using another's words, ideas, materials or work without properly acknowledging and documenting the source”. Students are responsible for knowing the rules governing the use of another's work or materials and for acknowledging and documenting the source appropriately. You can find this definition at:

http://www.asu.edu/studentaffairs/studentlife/judicial/academic_integrity.htm

Academic dishonesty, including inappropriate collaboration, will not be tolerated. There are severe sanctions for cheating, plagiarizing and any other form of dishonesty.

ATTENDANCE: Attendance is mandatory! Your instructor reserves the right to take attendance and to incorporate your attendance as part of your overall grade. Students with chronic absences are likely to get the E grade.

TENTATIVE DATES FOR LECTURES AND EXAMS

| <i>Week of</i> | <i>Sections</i> | <i>Test dates & Holidays</i> |
|-------------------------------------|---|---|
| 08/14 | 11.1 Vectors in the Plane 11.2 Vectors in Three Dimensions | |
| 08/21 | 11.3 Dot Products 11.4 Cross Products 11.5 Lines and Curves in Space | |
| 08/28 | 11.6 Calculus of Vector-Valued Functions 11.7 Motion in Space 11.8 Length of Curves | |
| 09/04 | 11.9 Curvature and Normal Vectors | Labor Day September 4, 2017 |
| 09/11 | 12.1 Planes and Surfaces 12.2 Graphs and Level Curves 12.3 Limits and Continuity | Exam 1: Monday 9/11 covers chapter 11 |
| 09/18 | 12.4 Partial Derivatives 12.5 The Chain Rule 12.6 Directional Derivatives and the Gradient | |
| 09/25 | 12.7 Tangent Planes and Linear Approximation 12.8 Maximum/Minimum Problems 12.9 Lagrange Multipliers | |
| 10/02 | 13.1 Double Integrals over Rectangular Regions 13.2 Double Integrals over General Regions 13.3 Double Integrals in Polar Coordinates | |
| 10/09 | 13.2 Double Integrals over General Regions 13.3 Double Integrals in Polar Coordinates FALL BREAK October 7 - 10, 2017 | Exam 2: Friday 10/13 Cover Chapter 12, 13.1,13.2 |
| 10/16 | 13.4 Triple Integrals 13.5 Triple Integrals (Cylindrical/Spherical) | |
| 10/23 | 13.6 Integrals for Mass Calculations 13.7 Change of Variables in Multiple Integrals | |
| 10/30 | 14.1 Vector Fields 14.2 Line Integrals | |
| 11/06 | 14.3 Conservative Vector Fields 14.4 Green's Theorem | Veteran's Day November 10, 2017 |
| 11/13 | 14.5 Divergence and Curl 14.6 Surface Integrals | Exam 3 Monday 11/13 Covers 13.3 – 13.7, 14.1, 14.2 |
| 11/20 | 14.7 Stokes' Theorem 14.8 Divergence Theorem | |
| 11/27 | Review for Final Exam | |
| 12/04 | Final Exam: The final exam will be comprehensive, but will emphasize material from Chapter 14. Room to be announced. | Final Exam: Tues, Dec 5 from 7:10 pm to 9:00 pm |
| Course Withdrawal Deadline | | November 1, 2017 |
| Complete Withdrawal Deadline | | December 1, 2017 |

Suggested Problems: Textbook has answers for odd problems. All problems, at least odd numbered problems are suggested for your exercise. Many of the test problems are similar to textbook problems and Webwork exercises.

ASU Videos:

- <https://vidman.asu.edu/>
- <http://fym.la.asu.edu/~pvaz/mat275/mat275videos.html>
- https://math.la.asu.edu/~surgent/video/mat267_exp.html

These sites contains video lessons for the course. You are welcome and encouraged to use these as supplements for the lecture.

Points Allocations

| Grade Assignment | |
|------------------|--------------|
| A+ | 97% + |
| A | 93% – 96.99% |
| A– | 90% – 92.99% |
| B+ | 87% – 89.99% |
| B | 83% – 86.99% |
| B– | 80% – 82.99% |
| C+ | 77% – 79.99% |
| C | 70% – 76.99% |
| D | 60% – 69.99% |
| E | < 60% |

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|--|------------|
| The Three Chapter Tests to be given in class. | |
| Exams Policies: Your calculator memory may be randomly viewed during any exam and will be cleared if anything suspicious is written therein. The Instructor has the right to regard finding suspicious material in your calculator memory as cheating. Makeup exams are given at the discretion of the instructor and only in the case of verified medical or other emergency, which must be documented. The instructor must be notified before the test is given. Call the instructor or the Math Department Office (480-965-3951) and leave a message or directly notify your instructor. | 50% |
| HOMEWORK: The class uses the online homework system WebWork . Expect to spend a lot of time doing homework. You'll need to start it earlier than the day before it is due. There are many resources on campus including the Engineering Tutoring Center and the Math Community Center located in WCLR A 303 (see below). | 15% |
| Recitations | 10% |
| The (common) final exam will be on Tuesday, Dec. 5th from 7:10 to 9:00pm . Your instructor will announce the location once it has been set. The final is comprehensive. There will be no make-ups given for the final, and no finals will be rescheduled for personal reasons, including non-refundable airplane tickets | 25% |

Learning Outcomes: At the completion of this course, students will be able to, among other things:

- Describe the structure of a 3-D coordinate system.
- Perform vector operations including dot product and cross product.
- Find parametric equations of a line and scalar equation of a plane.
- Identify cylinders and quadric surfaces.
- Find domain, limit, derivative and integral of a vector function, and the tangent line to a space curve.
- Evaluate the arc length of a vector function.
- Solve applied problems involving velocity and acceleration

- Determine the domain and range of two and three variable functions, and interpret contour plots and level surfaces.
- Find partial derivatives and explain their geometrical meaning.
- Find the tangent plane to a surface at a given point.
- Find linear approximations and differentials
- Write out and apply the chain rule.
- Evaluate gradients and directional derivatives
- Determine maximum and minimum values of a two variable function.
- Evaluate double integrals over general regions.
- Convert double integrals from cartesian to polar coordinates and viceversa
- Evaluate triple integrals in Cartesian, cylindrical and spherical coordinates.
- Sketch vector fields
- Evaluate line integrals of scalar functions and line integrals of vector fields.
- Find a potential function for a conservative vector field.
- State and apply the Fundamental theorem for Line Integrals
- State and apply Green's Theorem
- Find curl and divergence of a vector field.
- Find an equation of the tangent plane to a parametric surface at a given point.
- Evaluate the surface area of a parametric surface on a given domain.
- Evaluate surface integrals of scalar functions and surface integrals of vector fields.
- State and apply Stokes Theorem
- State and apply the Divergence Theorem

Office Hours: Office hours are times when your instructor is available to meet with you outside of class. You can come to office hours to ask about newly covered material or to discuss homework problems that you have already seriously attempted, or to seek clarification of class policies or requirements or to discuss grades.

Office hours are a service for students who come to class, study, and do their homework. You will not receive makeup lessons for classes you missed or personal reviews of class material. If you have difficulty with homework assignments that you have seriously attempted, seek help early. I will not tell you the answer or do your homework for you. Expect me instead to ask questions to stimulate your own ability to find the answer. Seeking help a few hours before an assignment is due is therefore not a good idea. If you require frequent assistance, you should try out the free tutoring options or seek the help of a personal tutor. The tutoring centers have a lot of experience with MAT 272. Be patient. Office hours can get busy right before tests or assignments are due.

Communication with your instructor: Please feel free to e-mail me to request an appointment or to clarify a policy. Always include MAT272 in the subject heading so it does not go to my SPAM filter. Please plan to ask me for help with your homework at least two days before the due date. Note that it is typically very difficult to do mathematics through e-mail, especially when a concept is not clear. I will not extend homework deadlines unless we have not covered the material, in which case I will communicate this information to the whole class at the same time. Do not use email to ask me questions about what to study for the exam (see section below for tips). Do not expect answers to your e-mails after 5 pm on weekdays, or at all on weekends. Please do not call my office to schedule an appointment. I do not regularly check my voicemail.

Studying for the class: While diligent, timely completion of the online homework assignments is necessary to master procedural skills, this alone is usually insufficient to gain conceptual understanding. That is especially true if you habitually abuse the help function. The more you complete problems by pressing “Help Me Solve This” and then just imitating steps you do not understand, the more you are cheating yourself. The exams will not have a help function- nor will mathematical problems you encounter in your professional life.

To master the concepts, you must

- review and study your class notes and/or the textbook thoroughly with the goal to understand the connections between the concepts.
- create your own lists (or perhaps 3x5 cards) of definitions and theorems and commit them to memory like you would do with vocabulary in any language.
- use the help function of the online homework extremely sparingly, and only after having tried your best to apply the theory you have learned to solve the problem.
- take the in-class activities seriously and complete all the activities.

You must do all this continuously throughout the semester. You must have learned the definitions and theorems covered in each class session and started the corresponding section of the online homework by the time of the next class session. Failure to know the material covered in lectures will result in your inability to follow subsequent lectures, and the difference between where you are in your understanding and where you should be will be compounded with each lecture.

Relying on “just in time” cramming for exams is an ineffective study technique and will virtually guarantee failure in the class.

Tutoring is available at the **Math Tutor Center in WXL R A 116** and at the **Engineering Tutor Center, ECF 102**.

The math tutoring center located in PSA 116 is open for tutoring throughout the week. Their hours of operation are

- Monday-Thursday from 8:00 AM until 8:00 PM
- Fridays from 8:00 AM until 3:00 PM
- Sundays from 1:00 PM until 6:00 PM.

The **ASU Math Community Center** in WXL R A 303 is an excellent place to get help for the class. The MCC is open Monday to Friday, 10am to 7pm.

ASU Learning Resource Center (LRC): The LRC, <http://asu.edu/lrc> provides counseling, tutoring in math (and many other subjects), supplemental instruction, and other types of support to students. LRC resources are available in many residence halls and in the Memorial Union, Room 14. See the LRC web page for further information.

Academic Status Report: there are two times during the semester when you will be issued an academic status report from your instructor if your class grade is failing at that time.

Status Report #1 may be viewed between September 25 - October 2, 2017

Status Report #2 may be viewed between October 25 - 30, 2017

If you receive a status report, you must act on it. In particular, if the status report says that you are to meet with your instructor in person, come to office hours **within one week of receiving the report**.

Status reports are **not** a real-time running tally of your grades in the class and are not updated to reflect grades earned after the report has been issued.

Piazza: Piazza is an online forum site specifically created for math and science courses. It features a clean interface that makes following threads easier, the threads are sortable and searchable, and provides the ability to enter symbolic mathematics. It is a collaborative site in which students are encouraged to post questions and other students are encouraged to offer assistance. The instructor and teaching assistants monitor Piazza regularly, offering feedback whenever necessary.

Piazza is built into every online course shell and is a required aspect of the course. The instructor will also post messages to the class in this site. Thus, it is the student's responsibility to be properly signed up in Piazza as directed by the instructor.

Student Rules of Engagement (Piazza):

- All questions related to classwork should be posted to Piazza. Any homework or classwork questions emailed directly to the instructor will not be answered.
- Please include the section number and question number in the header (e.g. Section 11.2, #7).
- Please include a couple lines of your work. You may also photograph your written work and insert the image within the post. Please trim the image size if possible.
- Please be courteous at all times. No vulgar, demeaning, or aggressive language will be tolerated.
- Do not use Piazza to air grievances or to campaign.
- Do not use Piazza for personal messages. Those should be sent by email to the instructor directly.
- Stay on topic. Do not use Piazza for discussions not related to this class.
- Keep a civil and friendly atmosphere. Piazza works best when there are a lot of students willing to engage the forum.
- Please do not expect immediate replies. Instructors usually check the forum daily. In the meantime, other students are encouraged to add feedback and commentary. Instructors may also deliberately stay in the background so as to promote student-led discussions.

Failure to adhere to these requirements may result in your posting privileges being revoked.

Classroom behavior: Make sure you arrive on time for class

Excessive tardiness will be subject to sanctions. **Under no circumstances should you allow your cell phone to ring during class.** Any disruptive behavior, which includes ringing cell phones, listening to your mp3/iPod player, text messaging, constant talking, eating food noisily, reading a newspaper will not be tolerated. The use of laptops (unless for lecture note taking), cell phones, MP3, IPOD, etc are strictly prohibited during class. Students who engage in disruptive classroom behavior may be subject to various sanctions. The procedures for initiating a disruptive behavior withdrawal can be found at <http://clas.asu.edu/classroom/disruptive>.

- This syllabus is tentative and should not be considered definitive. The instructor reserves the right to modify it (including the dates of the tests) to meet the needs of the class. It is the student responsibility to attend class regularly and to make note of any change.
- It is a student's responsibility to verify that they have in fact withdrawn from a class.
- Please schedule an appointment to see me during office hours if you have a disability that will require accommodations in this class.
- To qualify for disability accommodations at ASU, students must qualify for services through the Disability Resource Center (DRC), which is located on the 1st floor of the Matthews Center Building. 480.965.1234 (V), 480.965.9000 (TTY). Please complete this process as soon as possible.

Departmental and University Policies and Procedures

- **The grade of Incomplete:** A grade of incomplete will be awarded only in the event that a documented emergency or illness prevents the student who is doing acceptable work from completing a small percentage of the course requirements. The guidelines in the current general ASU catalog regarding a grade of incomplete will be strictly followed.
- **Instructor-Initiated Drop:** At the instructor's discretion, any student who has not attended class during the first week of classes may be administratively dropped from the course. However, students should be aware that non-attendance would NOT automatically result in being dropped from the course. Thus, a student should not assume they are no longer registered for a course simply because they did not attend class during the first week. It is the student's responsibility to be aware of their registration status.
- **Final Exam Make-up Policy:** The final exam schedule listed in the Schedule of Classes will be strictly followed. Exceptions to the schedule and requests for make-up examinations can be granted only by the Department Chair, Associate Department Chair or the Director of First Year Mathematics, and for one of the following reasons:
 1. Religious conflict (e.g., the student celebrates the Sabbath on Saturday)
 2. The student has more than three exams scheduled on the same day as the math final
 3. There is a time conflict between the math final and another final exam.
- **Incomplete:** If there is a last-minute personal or medical emergency, the student may receive a grade of Incomplete and make up the final within one calendar year. The student must provide written documentation and be passing the class at the time to receive an Incomplete. Make-up exams will NOT be given for reasons of a non-refundable airline tickets, vacation plans, work schedules, weddings, family reunions, and other such activities. Students should consult the final exam schedule before making end-of-semester travel plans. *The Dean of the student's college must approve any exceptions to these rules.*
- **Academic Dishonesty**

Academic honesty is expected of all students in all examinations, papers, laboratory work, academic transactions and records. The possible sanctions include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification and dismissal. For more information, see <http://provost.asu.edu/academicintegrity>.
- **Students with Disabilities**

Disability Accommodations: Qualified students with disabilities who will require disability accommodations in this class are encouraged to make their requests to me at the beginning of the semester either during office hours or by appointment. Note: Prior to receiving disability accommodations, verification of eligibility from the Disability Resource Center (DRC) is required. Disability information is confidential.
- **Establishing Eligibility for Disability Accommodations**

Students who feel they will need disability accommodations in this class but have not registered with the Disability Resource Center (DRC) should contact DRC immediately. Their office is located on the first floor of the Matthews Center Building. DRC staff can also be reached at: 480-965-1234 (V), 480-965-9000 (TTY). For additional information, visit: www.asu.edu/studentaffairs/ed/drc. Their hours are 8:00 AM to 5:00 PM, Monday through Friday.

- **Absences related to religious observances/practices:** If you will be absent from class due to a religious observance or practice, it is your responsibility to inform the instructor during the first week of class. Your instructor will work with you on alternative and reasonable arrangements for any time missed.
- **Absences related to university sanctioned events and activities:** If you will be absent from class due to participation in a university sanctioned event/activity, it is your responsibility to inform the instructor during the first week of class. Your instructor will work with you on alternative and reasonable arrangements for any time missed.
- **The grade of XE:** A grade of XE is reserved for "failure for academic dishonesty." The grade goes on the student's transcript; the student needs to petition to have it removed after 1 year.
- **The grade of EN:** A grade of EN is reserved for students that never showed up or never did anything in the course. The grade goes on the student's transcript.
- **Ethics:** It's highly unethical to bring to your instructor's attention the possible impact of your mathematics grade on your future plans, including graduation, scholarships, jobs, etc. The instructor may exercise an option to withdraw you from the course if they think you are compromising the ability to assess your work independently of any other consideration. Students found to be involved in academic dishonesty will be removed from the class and a grade of E for the course will be submitted to the registrar. The student will be advised to repeat the course with another professor, possibly at another institution. This is the least action taken. Further, more serious actions may be taken if the situation indicated that such actions are appropriate. We will act very harshly against cheating during Quizzes or Exams.