Framingham State University

MATH 221: Calculus III

Summer 2019 Syllabus

Time: 8:30-10:30 Monday-Friday	**Instructor: Wanchunzi Yu**
Office: TBA	**Office Hours: TBA (Or by appointment)**
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Catalog Course Description
A study of conic sections; vectors in two and three dimensions; dot and cross products and their applications to geometry; equations of lines and planes; quadratic surfaces; polar, cylindrical, and spherical coordinates; and functions of several variables, partial derivatives, differentials, directional derivatives, gradients, optimization problems, multiple integrals and their applications.

Prerequisite
MATH 220 Calculus II with a minimum grade of C (2.00) or higher.

Text
The official course text is **Calculus: Early Transcendentals**, third edition, by Jon Rogawski and Colin Adams.

Student Learning Outcomes
Upon successful completion of this course, students will be able to:
- Understand the parametric equations of curves in high dimensions.
- Apply and interpret basic properties of vectors.
- Perform calculus operations on vector-valued functions, such as derivatives, integrals, velocity, acceleration, etc.
- Describe and sketch graphs of functions using polar and cylindrical systems.
- Find extrema and tangent planes.

Topic Calendar

No.	Sections Covered (Tentative)	Day
	WEEK 1 8th July-12th July	
1	Chapter 11.1 Parametric Equations	0.5
2	Chapter 11.2 Arc Length and Speed (Scalar Systems)	1
3	Chapter 11.3 Polar Coordinates	0.5
4	Chapter 11.4 Area and Arc Length in Polar Coordinates	1
5	Chapter 12.1 Vectors in the Plan	0.5
6	Chapter 12.2 Vectors in Three Dimensions	0.5
	WEEK 2 15th July-19th July	
7	Chapter 12.3 The Dot Product	1
8	Chapter 12.4 The Cross Product & Midterm Exam 1 Review	1
9	Chapter 13.1 Vector-Valued Functions	0.5
10	Chapter 13.2 Calculus of Vector-Valued Functions	1
11	Chapter 13.3 Arc Length and Speed (Vectors)	1
12	Chapter 14.1 Functions of Two or More Variables	0.5
	WEEK 3 22nd July-26th July	
13	Chapter 14.2 Limits and Continuity in Several Variables	1
14	Chapter 14.3 Partial Derivatives	1
15	Chapter 14.4 Differentiability and Tangent Planes	1
16	Chapter 14.5 The Gradient and Directional Derivatives	1
	WEEK 4 29th July-2nd Aug	
17	Chapter 14.6 The Chain Rule	1
18	Chapter 14.7 Optimization in Several Variables & Midterm Exam 2 Review	1

19	Chapter 15.1 Integration in Two Variables	1
20	Chapter 15.2 More General Regions	0.5
21	Chapter 15.3 Triple Integrals	1
	WEEK 5 5th Aug.-9th Aug.	
22	Chapter 15.4 Polar, Cylindrical, and Spherical Integrals	1
23	Chapter 16.1 Vector Fields	0.5
24	Chapter 16.2 Line Integrals	1
25	Chapter 16.3 Conservative Vector Fields	1
26	Chapter 16.4 Surface Integrals & Final Exam Review	1

Homework
Homework will be assigned through the online homework system WebWork. To sign up or log in, click on the link in the Course Content section in Blackboard. Your lowest homework grade will be dropped. NO LATE HOMEWORK WILL BE ACCEPTED.

Blackboard
Grades and additional course content will be uploaded to Blackboard. Make sure to check it regularly for updates.

Quizzes (Attendance)
Quizzes will be given in class. Often you will be able to work in groups, but each individual student must submit his or her own work. **There will not be any make-up quizzes available.**

Important Notes about Submitted Work
On all of your written assignments you must show all work for the problems to receive full credit, even if the final answer is correct. Do not submit just the final answer not supported by any work. Your handwriting must be legible, your name and class time must be clearly written at the top of the front page. Proper notation is mandated.

Midterm Exams
You will take 2 mid-term exams during the semester. Exams are given in class and time will be limited to class time. Each will involve a mix of mechanical skills and conceptual reasoning. The best possible preparation for them is regular attendance and completion of assigned homework & quizzes. You may have 1 page 8x11 of hand written notes (1 side only) on each exam, including a final exam; specific problems solved may be included. Make-up exams are only given in case of documented emergencies.

Final Exam
The final exam will take place at the last class meeting on August 9, 2019.

Grading Criteria
Your final course grade will be determined by
Homework: 25%
Quizzes (Attendance): 10%
Midterms: 20% each
Final Exam: 25%

Grading Scale:
The instructor will use the grading system as applied by Framingham State University:

Overall Average Grade	Letter Grade
95 – 100	A
90 - 94	A-
87 - 89	B+
83 - 86	B
80 - 82	B-
77 - 79	C+
74 - 76	C
70 - 72	C-
67 - 69	D+
63 - 66	D
60 - 62	D-
00 - 59	F

Class Hours and Course Expectations
For our accreditation, it is essential that all Framingham State University credit courses follow the Federal Definition of credit hour: for every one hour of classroom or direct faculty instruction, a minimum of two hours of out-of-class student work is required. Since the summer China courses meet for two contact hours daily (10 contact hours of classroom time weekly), the expectation is that students spend 20 hours per week doing out-of-class work. For the five week 4-credit course, this reflects 50 hours of classroom time and 100 hours of out-of-class time since the credit hour is defined as 50 minutes.

Academic Honesty Policy
Integrity is essential to academic life. Consequently, students who enroll at Framingham State University agree to maintain high standards of academic honesty and scholarly practice. They shall be responsible for familiarizing themselves with the published policies and procedures regarding academic honesty.
Students are encouraged to discuss the course material with one another and form study groups to prepare for the quizzes and exams. However, collaboration on individual assignments (homework, quizzes, and exams) is not allowed and will be handled in accordance with FSU's academic honesty policy.

Academic honesty requires but is not limited to the following practices: appropriately citing all published and unpublished sources, whether quoted, paraphrased, or otherwise expressed, in all

of the student's oral and written, technical, and artistic work; observing the policies regarding the use of technical facilities.

Infractions of the Policy on Academic Honesty include, but are not limited to:

1. Plagiarism: claiming as one's own work the published or unpublished literal or paraphrased work of another. It should be recognized that plagiarism is not only academically dishonest but also illegal.
2. Cheating on exams, tests, quizzes, assignments, and papers, including the giving or acceptance of these materials and other sources of information without the permission of the instructor(s).
3. Unauthorized collaboration with other individuals in the preparation of course assignments.
4. Submitting without authorization the same assignment for credit in more than one course.
5. Use of dishonest procedures in computer, laboratory, studio, or field work. Further clarification on academic honesty will be provided, when appropriate, in individual courses.
6. Misuse of the University's technical facilities (computer machinery, laboratories, media equipment, etc.), either maliciously or for personal gain. Examples include but are not necessarily limited to:
    a) Accessing the private files of another person or agency without express permission.
    b) The unauthorized use of technical facilities for purposes not connected with academic pursuits. When evidence indicates that a student has improperly used a technical facility, an appropriate supervisor (faculty or staff member) may take appropriate action reflecting the seriousness of the infraction, ranging from a verbal warning to, but not beyond, denial of use of the facility. If coursework may have been plagiarized, the supervisor will also inform all concerned faculty members, who may take action as described in the procedures for handling cases of alleged infractions of academic honesty.
7. Falsification of forms used to document the academic record and to conduct the academic business of the University

For more information about Academic Regulations at Framingham State, please see pages 28 46 of the Framingham State University Undergraduate Catalog 2018-2019.

FSU Notice of Non-Discrimination and Diversity

Framingham State University is committed to a policy of non-discrimination, equal opportunity, diversity, and affirmative action. The University is dedicated to providing educational, working, and living environments that value the diverse backgrounds of all people. Furthermore, the Massachusetts Civil Rights Act ("MCRA," M.G.L. c. 12, §§ 11H, 11I, 11J) protects the rights of all residents of and visitors to Massachusetts to be free from bias-motivated threats, intimidation, and coercion that interfere with their civil rights. The MCRA protects the right to attend school, live peacefully, and enjoy other basic rights.

U.S. Copyright Law

This course website may contain copyrighted materials that are used in compliance with the U.S. Copyright Law. Under that law, materials may not be saved to your computer, revised, copied, or distributed without permission. They are to be used in support of instructional activity as part of this course only and shall be limited to the duration of the course, unless otherwise specified by the instructor or owner of the material. You may only download or print materials at the direction of your instructor who knows which materials are copyrighted and which are not.

* This syllabus may be amended during the semester