I. LOCATOR INFORMATION

Course Number & Name: Math 241-01 Calculus with Analytic Geometry II
WebAssign Class Key: uncsfu 4055 4313
Semester Hours of Credit: 4
Time Class Meets: Class MW 12:00pm-1:15pm & Lab F 12:00pm-1:50pm.
Where Class Meets: Class S&T 435 & Lab SBE 221
Instructor's name: Dr. Zhao
Office Location: Science & Technology, Room 222
Office Telephone: 910-672-1500
E-mail Address: gzhao@uncfsu.edu
Office Hours: MW 1:15-3:00 pm & 5:15-6:00 pm; T 9:15-11:50am (in SBE 214)

“In case FSU must close for an emergency during the semester, instruction will continue using Blackboard.”

FSU Policy on Electronic Mail: Fayetteville State University provides to each student, free of charge, an electronic mail account (username@uncfsu.edu) that is easily accessible via the Internet. The university has established FSU email as the primary mode of correspondence between university officials and enrolled students. Inquiries and requests from students pertaining to academic records, grades, bills, financial aid, and other matters of a confidential nature must be submitted via FSU email. Inquiries or requests from personal email accounts are not assured a response. The university maintains open-use computer laboratories throughout the campus that can be used to access electronic mail. Rules and regulations governing the use of FSU email may be found at http://www.uncfsu.edu/PDFs/EmailPolicyFinal.pdf

II. COURSE DESCRIPTION

The second course of a three-semester sequence in calculus with analytic geometry, including studies of differentiation and integration of exponential, logarithmic, inverse, trigonometric and hyperbolic functions; techniques of integration, improper integrals, infinite series, and analytic geometry.

III. DISABLED STUDENT SERVICES

In accordance with Section 504 of the 1973 Rehabilitation Act and the Americans with Disabilities Act (ACA) of 1990, if you have a disability or think you have a disability to please contact the Center for Personal Development in the Spaulding Building, Room 155 (1st Floor); Tel: 910-672-1203.
IV. **Title IX – Sexual Misconduct**

Fayetteville State University (University) is committed to fostering a safe campus environment where sexual misconduct — including sexual harassment, domestic and dating violence, sexual assault, and stalking - is unacceptable and is not tolerated. The University encourages students who may have experienced sexual misconduct to speak with someone at the University so that the University can provide the support that is needed and respond appropriately. The Sexual Misconduct policy can be found at the following link: http://www.uncfsu.edu/Documents/Policy/students/SexualMisconduct.pdf

**Consulting with a Health Care Professional** - A student who wishes to confidentially speak about an incident of sexual misconduct should contact either of the following individuals who are required to maintain confidentiality:

- Ms. Pamela C. Fisher  
  Licensed Professional Counselor  
  Spaulding Building, Room 165  
  (910) 672-387  
  psmith@uncfsu.edu

- Ms. Linda Melvin  
  Director, Student Health Services  
  Spaulding Building, Room 121  
  (910) 672-1454  
  lmelvi10@uncfsu.edu

**Reporting an Incident of Sexual Misconduct** - The University encourages students to report incidents of sexual misconduct. A student who wishes to report sexual misconduct or has questions about University policies and procedures regarding sexual misconduct should contact the following individual:

- Ms. Victoria Ratliff  
  Deputy Title IX Coordinator for Students  
  Spaulding Building, Room 155  
  (910) 672-1222  
  vratliff@uncfsu.edu

Unlike the Licensed Professional Counselor or the Director of Student Health Services, the Deputy Title IX Coordinator is legally obligated to investigate reports of sexual misconduct, and therefore cannot guarantee confidentiality, but a request for confidentiality will be considered and respected to the extent possible.

Students are also encouraged to report incidents of sexual misconduct to the University’s Police and Public Safety Department at (910) 672-1911.

V. **TEXTBOOK**


VI. **STUDENT LEARNING OUTCOMES**

Upon completion of this course, students will be able to:

- Demonstrate the knowledge of differentiation and integration theory and the ability to apply the
- Fundamental Theorem of Calculus to evaluate integrals including improper integrals using various techniques.
- Demonstrate the ability to use integration techniques to find areas, volumes, arc lengths, and other
related problems in applied sciences.

- Demonstrate the knowledge of modeling techniques with differential equations and the ability to solve basic linear and nonlinear differential equations using various analytical and numerical techniques including Euler’s method.

- Demonstrate the knowledge of infinite series and the ability to apply various tests for convergence, perform standard operations with power series, and find Taylor and Maclaurin series representations of functions.

- Demonstrate the ability to apply numerical integration techniques and use mathematical software such as Maple18 to solve practical problems.

VII. COURSE REQUIREMENTS AND EVALUATION CRITERIA

Evaluation Criteria:
Major tests or projects will be given at the completion of each chapter. There will be four chapter tests. The lowest chapter test grade will be dropped. A comprehensive final exam will be given at the conclusion of the course. The grading scale and weights given to various activities for evaluation are listed below.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests (Best Three Chapter Test Scores)</td>
<td>50%</td>
</tr>
<tr>
<td>Homework (on WebAssign)</td>
<td>20%</td>
</tr>
<tr>
<td>Class Commitment/Quizzes/Project</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
</tbody>
</table>

A 90-100%
B 80-89%
C 70-79%
D 60-69%
F Below 60%
FN Failing due to non-attendance and/or excessive absences

Course Requirements:

1. **Attendance to all lectures and lab sessions are mandatory!** It is the responsibility of the students to avail themselves of all class meetings and lab sessions, tutorial sessions, and individual help from their instructors. Additional tutorial services are provided by Student Services in the Helen T. Chick Building, ISAS program and the CPSER program. Please visit the websites of ISAS and CPSER to get more information regarding tutoring schedules.

2. Homework is assigned online at **WebAssign**. Each homework assignment has a due date. Extensions of homework due dates may be granted with a penalty per instructor’s permission.

3. **There are four chapter tests.** All tests will be announced well in advance of their administration. The final exam is cumulative, i.e., it covers the contents of all chapters.

4. Students are expected to enter the classroom and lab room on time and remain until the class and lab ends. Three late arrivals and early departures will constitute an absence from the class/lab. The detailed
attendance policy may be found in the FSU Catalog 2014-2015.

5. Students must refrain from smoking, eating and drinking in the classroom. The rights of others must be respected at all times.

6. Students are encouraged to ask questions of the instructor in class and lab session and to respond to those posed by the instructor. They should not discourage others from raising or answering questions. Often, other students have the same questions which they wish to ask, but are hesitant to do so.

7. Students are expected to complete all class assignments and to spend adequate time on their class work to insure that the course outcomes are met. At least two hours of home study is expected for each class hour.

8. Talking in class between students is strictly unacceptable. Discussions should be directed to the instructor.

8. Dishonesty on graded assignments will not be tolerated! Students must neither give nor receive any assistance on any work to be graded. The University's cheating policy will be applied for any violations. The minimum penalty will be a grade of zero (0) on the assignment.

10. A Graphing Calculator is required for this course.

11. Students should refrain from using cellphones in class.

VIII. ACADEMIC SUPPORT RESOURCES

FSU Blackboard
http://blackboard.uncfsu.edu/
All class documents and resources, such as syllabus, slides, worksheets, handouts and reviews for tests will be posted on the Blackboard system.

Academic Support Centers
There are a few Academic Support Centers on campus which offer free student tutoring:
  • Integrated STEM Academic Success (ISAS) http://www.uncfsu.edu/isas/tutorial-services
  • Center for Promoting STEM Education and Research (CPSER) http://www.uncfsu.edu/cpsertutorial-services,
  • Mathematics Support Center (part of the University College Learning Center) http://www.uncfsu.edu/learning-center/math-support

Smarthinking
Smarthinking is an online tutoring website that is free for all students at Fayetteville State University. It may be accessed via the Blackboard website. Smarthinking provides online tutoring 24 hours a day, 7 days a week enabling students to get the help they need when they need it.
http://www.uncfsu.edu/learningcenter/wac/CampusResource.htm

MATLAB and MAPLE
The mathematical software such as MatLab and Maple is installed in the computer labs in SBE Building such as SBE 221.
IX. COURSE OUTLINE*

Chapter 5
5.1. Area and distances
5.2. The definite integral
5.3. Calculating limits using the limit laws
5.4. The Fundamental Theorem of Calculus
5.5. The Substitution Rule
5.6. Integration by parts
5.7. Additional techniques of integration
5.8. Integration using tables and computer algebra system
5.9. Approximate integration-
5.10. Improper integrals

TEST 1

Chapter 6
6.1. More about area
6.2. Volumes
6.3. Volume by cylindrical shells
6.4. Arc length
6.5. Average value of a function
6.6. Applications to physics and engineering
6.7. Applications to economics and biology
6.8. Probability

TEST 2

Chapter 7
7.1. Modeling with differential equations
7.2. Direction fields and Euler’s Method
7.3. Separable equations
7.4. Exponential growth and decay
7.5. The Logistic Equation
7.6. Predator-prey systems

TEST 3

Chapter 8
8.1. Sequences
8.2. Series
8.3. The integral and comparison tests
8.4. Other convergence tests
8.5. Power series
8.6. Representations of functions as power series
8.7. Taylor and Maclaurin series
8.8. Applications of Taylor polynomials

TEST 4

Review for Final Exam

FINAL EXAM: Wednesday, May 6, 12:00 pm – 1:50 pm.
X. TEACHING STRATEGIES

The majority of the material of the course will be given in lecture format. There is a short review before and after each lecture. There will be a comprehensive review after the completion of each chapter. Graphing calculators will be used in the class to help students develop a firm grasp of the underlying mathematical concepts. A help session will be set up after the first week to provide tutorial assistance for students in this class.

XI. REFERENCES