Calculus II MATH 2414.004
Department of Mathematics and Statistics
Spring 2020

A. COURSE INFORMATION

Course number/section: MATH 2414.004
Class meeting time: MWF 11:00 - 11:50 AM
Class location: CI 112
Course Website: bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Baohua Chen
Office location: CI 306
Office hours: MW 12:00 - 2:30 PM
Telephone: (361) 825-6019
e-mail: baohua.chen@tamucc.edu
Appointments: Appointments outside of office hours are available by request

C. COURSE DESCRIPTION

Catalog Course Description
Integration, applications of integration, especially to differential equations, sequences, series, Taylor polynomials and series. Contains a laboratory component.

D. PREREQUISITES FOR THE COURSE

Prerequisites
Math 2413 (Calculus 1).

Corequisites
Enrollment in a lab MATH 2414-20X.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)
Calculus: Early Transcendentals, 8th Ed. By J. Stewart

Software
WebAssign access for homework assignment. Access code may be purchased through the WebAssign linked with the Blackboard. No class key is needed since instructor has uploaded the roster to put students in the registered class.
F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Evaluate integrals by the Fundamental Theorem of calculus, substitution, integration by parts, trigonometric substitution, and by using trigonometric identities to simplify an integrand.
2. Compute the area between two curves, compute volumes and surface areas of solids of resolution, compute arc length
3. Determine whether an integral is an improper integral and determine whether an improper integral converges.
4. Compute limits of sequences and series to determine convergence/divergence of a sequence
5. Determine convergence/divergence of an infinite series using the integral, comparison, root or ratio test.
6. Determine the radius of convergence of power series; differentiate and integrate power series
7. Represent a known function as a Taylor series; approximate a known function with a Taylor polynomial and determine the error involved
8. Graph a parametric curve and compute the length of a parametric curve

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Methods and activities for instruction include lecture by the instructor and participation by the students by doing problems in class.

- **Homework:** Homework will be assigned after each class through WebAssign. Any homework questions will be answered during office hours if time does not permit in class.
- **Test:** There will be two in-class tests. They are tentatively scheduled for Test 1: Friday, Feb. 7th (Chapter 6);
  Test 2: Friday, April 17th (Chapter 11)
- **Midterm Exam:** Friday, March 6th (Chapter 6, 7, 8)
H. MAJOR COURSE REQUIREMENTS AND GRADING

Grades will be calculated by homework, tests, exams, and labs, according to the following percentages.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WebAssign Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Lab Reports</td>
<td>20%</td>
</tr>
<tr>
<td>Tests</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
</tbody>
</table>

Grading Scales:
A: 90-100, B: 80-89.99, C: 70-79.99
D: 60-69.99, F: 59.98-

Note:

- No homework grades and no test grades get dropped.
- Labs are graded by TA. Lab has its own syllabus whose policies supplement this syllabus.
- Final score will replace one lower scores in tests(unless the final score is lower than two test scores)

I. COURSE CONTENT/SCHEDULE

- Important Dates:
  
  January 20  Martin Luther King, Jr. Holiday, No Class
  January 28  Last day to register or add a class
  March 9 - 13 Spring Break
  April 10    Last Day to Drop a Class
  May 6       Last Day of Classes
  May 7       Reading Day
  May 11      Final Exam 12:00-2:30 PM
• Course Schedule:

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Topics</th>
<th>Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 20</td>
<td>Review of Cal 1</td>
<td>5.5</td>
</tr>
<tr>
<td>Jan. 27</td>
<td>Areas between curves</td>
<td>6.1</td>
</tr>
<tr>
<td></td>
<td>Volumes of solids with known cross sections</td>
<td>6.2</td>
</tr>
<tr>
<td>Feb. 3</td>
<td>VSolids of revolution - disc method</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td>Average value of a Function</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td>Feb. 10</td>
<td>Test 1 (6.1 - 6.5)</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td>Integration by Parts</td>
<td>7.2</td>
</tr>
<tr>
<td>Feb. 17</td>
<td>Trigonometric Substitution</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>Division and partial fraction expansion</td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td>Strategy for Integration</td>
<td>7.5</td>
</tr>
<tr>
<td>Feb. 24</td>
<td>Improper Integrals</td>
<td>7.8</td>
</tr>
<tr>
<td></td>
<td>Arc Length</td>
<td>8.1</td>
</tr>
<tr>
<td></td>
<td>Area of a Surface of Revolution</td>
<td>8.2</td>
</tr>
<tr>
<td>Mar. 2</td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Review and Midterm (Chapter 6, 7, 8)</td>
<td></td>
</tr>
<tr>
<td>Mar. 16</td>
<td>Sequences convergence and divergence</td>
<td>11.1</td>
</tr>
<tr>
<td></td>
<td>Series, Geometric series</td>
<td>11.2</td>
</tr>
<tr>
<td></td>
<td>Integral test intuition Estimating infinite series</td>
<td>11.3</td>
</tr>
<tr>
<td>Mar. 23</td>
<td>Comparison Tests</td>
<td>11.4</td>
</tr>
<tr>
<td></td>
<td>Alternating Series</td>
<td>11.5</td>
</tr>
<tr>
<td></td>
<td>Ratio and Root Tests for convergence and divergence</td>
<td>11.6</td>
</tr>
<tr>
<td>Mar. 30</td>
<td>Tests for convergence and divergence</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td>Power series</td>
<td>11.8</td>
</tr>
<tr>
<td></td>
<td>Power series function representation using algebra</td>
<td>11.9</td>
</tr>
<tr>
<td>Apr. 6</td>
<td>Maclaurin series; Taylor Series approximations</td>
<td>11.10</td>
</tr>
<tr>
<td></td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td>Apr. 13</td>
<td>Test 2 (Chapter 11)</td>
<td></td>
</tr>
<tr>
<td>Apr. 20</td>
<td>Parametric curves</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td>Calculus on curves</td>
<td>10.2</td>
</tr>
<tr>
<td>Apr. 27</td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td>May 4</td>
<td>Prepare for final exam on May 11</td>
<td></td>
</tr>
</tbody>
</table>
Note: Changes in this course schedule may be necessary and will be announced to the class by the instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

- **Attendance/Tardiness**
  Attendance is mandatory. Attendance will be checked in each class. All absences will be considered unexcused unless you have an exceptional situation (e.g., documented illness, family situation), and you email the instructor about it within 24 hours. Excellent attendance records will help your grade in that borderline course-grade decisions will be influenced by these records.

- **Late Homework Assignments**
  Homework will be given each class period through WebAssign, and is due in the following week. In general, late homework will not be accepted, unless exceptional circumstances prevent you from completing them. Extension of deadlines will be at the instructor’s discretion. Late assignments may result in partial or total loss of credit. No homework grades will be dropped.

- **Make-up Exams**
  There is no make-up for any tests, midterm and final exam unless you could provide proper documentation from either medical doctors or any court orders. For an absence to be considered excused, the student must notify his or her instructor in writing (acknowledged e-mail message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g. accident or emergency) the student must provide notification by the end of the second working day after the absence. Without taking final exam, it will be an “F” for the semester grade regardless.
  Make-up test will be given once per student with appropriate documentation provided. Please save the opportunity for the emergencies.

- **Extra Credit**
  There is no extra credit given in this course.

- **Laptop/Cell Phone Use**
  Cell phone using is prohibited in any circumstances. Laptops, or any form of a new technology device is NOT allowed in the classroom during lecture and exam. Any use of cell phone or wireless device during a test carries the presumption of cheating. A grade of ZERO will be awarded for that assignment for using a cell phone or wireless device.

- **Food in Class**
  Please do not eat during class. This can distract others from learning, and part of my job is to provide a class atmosphere that aids student learning.

- **Missed Exam**
  See “Late Homework Assignments“ and “Make-up Exams“ above.
• Participation
  Strong, consistent class participation is expected from all students.

K. COLLEGE AND UNIVERSITY POLICIES

• Academic Integrity (University)
  University students are expected to conduct themselves in accordance with the highest
criteria of academic honesty. Academic misconduct for which a student is subject to penalty
includes all forms of cheating, such as illicit possession of examinations or examination
materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of
the work of another as one’s own work.) In this class, academic misconduct or complicity in
an act of academic misconduct on an assignment or test will result in a failing grade.

• Classroom/Professional Behaviour
  Texas A&M University-Corpus Christi, as an academic community, requires that each
individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article
III of the Student Code of Conduct, classroom behavior that interferes with either (a) the
instructor’s ability to conduct the class or (b) the ability of other students to profit from the
instructional program may be considered a breach of the peace and is subject to disciplinary
sanction outlined in article VII of the Student Code of Conduct. Students engaging in
unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all
instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field
trips, etc.

• Statement of Civility
  Texas A&M University-Corpus Christi has a diverse student population that represents
the population of the state. Our goal is to provide you with a high quality educational
experience that is free from repression. You are responsible for following the rules of the
University, city, state and federal government. We expect that you will behave in a manner
that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin,
religious background, sexual orientation or disability. Behaviours that infringe on the rights of
another individual will not be tolerated.

• Deadline for Dropping a Course with a Grade of W (University)
  I hope that you never find it necessary to drop this or any other class. Please consult with
your academic advisor, the Financial Aid Office, and me, before you decide to drop this
class. However, events can sometimes occur that make dropping a course necessary or wise. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar

  http://www.tamucc.edu/academics/calendar/
for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at

http://www.tamucc.edu/provost/university_rules/index.html

and the College of Science and Engineering Grade Appeals webpage at

http://sci.tamucc.edu/students/GradeAppeal.html

For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116. If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

http://disabilityservices.tamucc.edu/

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.
L. OTHER INFORMATION

- **Academic Advising**

The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College's Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

**GENERAL DISCLAIMER**

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.