Course: Calculus III (5 credits), MATH& 153, Item 6134, Section A, Spring 2011
Instructor: Gregory Ferencko, Science and Engineering Building, Office # 239, Phone: 253-566-5305
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Class Time and Location: MWF, 8:00 – 9:20 am, Bldg. 27, Room 130
Office Hours: M-F, 9:30 – 10:20 am, and by appointment.

Prerequisites: MATH&-152 with a "C-" or better or CL2 MATH placement and instructor permission; READ-095 with a "C" or better or assessment above READ-095.

Course Description: Topics of calculus are presented geometrically, numerically, and algebraically. There is an emphasis on problem-solving, understanding concepts, and writing to learn. Students should expect to read and write extensively. Computers and graphing calculators are used as tools to assist the student in learning to think mathematically. MATH& 153 includes topics from polar coordinates, parametric equations, infinite series, conic sections and vectors.

College-wide Learning Outcomes: Tacoma Community College has identified five college-wide learning outcomes that form the foundation of our educational emphasis: Communication (COM), Critical Thinking and Problem Solving (CRT), Responsibility and Ethics (RES), Information & Information Technology (IIT), and Living and Working Cooperatively/Valuing Differences (LWC).

Course Objectives:
Upon successful completion of the course, students will be able to:
1. Test for the convergence of sequences and series using various convergence tests. (CRT)
2. Understand power series as a means to define functions. (CRT)
3. Represent functions with Taylor series and find error estimates. (CRT)
4. Understand and use the calculus of series. (CRT)
5. Understand functions of several variables. (CRT)
6. Understand and use vectors in the plane and some of their applications. (CRT)
7. Write clear and complete solutions to mathematical problems, including using correct notation and writing explanations using correct English when appropriate. (COM)
8. Use graphing calculators and computer software as appropriate. (CRT, IIT)
9. Learn mathematics independently through reading the textbook. (CRT, COM)
Course Materials


Supplies/Tools: In addition to the text, the following items will be needed by you throughout the quarter:

- **Pencil, paper, graph paper, straight edge.**
- **Graphing Calculator.** I will be using the TI-84 Plus Silver Edition for all in class demonstrations. Any TI-83 or TI-84 calculator is the recommended calculator for this course. The use of any other type of calculator on exams or quizzes must be approved by me in advance. Calculators with symbolic capabilities and/or calculators built into other electronic devices (like cell phones and PDAs) are not acceptable and may not be used. Additionally, you are not allowed to share a calculator with another classmate during a quiz or exam. If you forget a calculator on an exam or quiz day, calculators are available for 2 hour check-out at the MARC provided you have photo ID.
- **Maple Software:** Maple is a computer algebra system that is available on TCC computers in the MARC and other student computer labs. Problem sets will include problems which must be done using the Maple program.
- **WAMAP Account.** I will be using WAMAP to post class documents, including problem sets and answer keys. Details about WAMAP are provided on my website and will also be discussed in class.
- **Internet access and e-mail.** If you don't have internet access at home, there are many places on campus where you can use a computer, most notably the Math Center (bldg. 19, room 22), the library (bldg. 7), and the Information Commons (bldg. 28). You should also set up your TCC e-mail account. I will expect that you check your TCC e-mail at least once each weekday. If you have not yet set up your campus computer account, go to building 28 for details about how to do so.

Course Activities and Grades:

Your course grade will be based upon your performance on various course activities. These activities include study problems, problem sets, in-class work/quizzes, unit exams, and a final exam. Each of these activities is described below along with information about how that activity will count toward your final grade.

**Unit Exams:** There will be three unit exams during the quarter. Each unit exam will count 15% toward your final grade.

**Final Exam:** There will be a cumulative final exam. The final exam will count 35% toward your final grade.

**Activity Grade:** Any graded activity not labeled as an "exam" will count towards your activity grade. The points you earn from each of these activities will be summed to form your activity grade. Because in-class work cannot be made up and late work is only accepted for a very limited amount of time, when computing your activity grade I will divide by 95% of the total activity points available. Activities that count towards your Activity Grade may include study problems, problem sets, in-class group work, quizzes, and projects. Each of these is described below. Your Activity Grade will count 20% toward your final grade.

**Study Problems:** Working on study problems every day is critical to your success in this class. Study problems will be assigned for each section that we cover in the text. It is my expectation that you will take responsibility for your own learning, so I will not be collecting or grading daily study problems. There will often be some time in class to discuss study problems and computer homework (see below), but not enough time to discuss all problems. If there is not enough time to discuss a problem on which you need help, I expect that you'll either see me during office hours and/or seek help at the Math Advising and Resource Center.
Problem Sets: In order to check your understanding, correct use of notation, and clarify my expectations regarding the quality of written work, selected problems will be assigned approximately 3 - 6 times during the quarter. Problem sets will consist of 3 - 5 problems and should be demonstrative of your best work. I will give zero points to messy, hastily written problems without adequate work and/or explanation. I encourage you to work together on these problems and am also happy to provide some guidance during office hours, however I will want to see the work you've been doing before providing such guidance. Other than clarifying problem statements and/or expectations, I will not discuss these problems in class until after the assignment is turned in. I will post solutions to the problem sets after the due date. Problem sets are due at the beginning of class on the due date noted on the problem set. Problem sets that are turned in during class but after the beginning of class (even 1 minute late) will have 2 points deducted. Problem sets will **NOT** be accepted after the 2:30 pm on the due date. The points earned on a problem set will count towards your activity grade.

Problem sets that don't meet the following criteria will be penalized:

1. **Neat and orderly.** Each problem should be clearly numbered. Problems should be done using vertical format whenever appropriate (e.g. solving equations, simplifying expressions, proving identities, etc.). The answer to the question should be clearly identifiable.
2. **Done in pencil.** (Use your eraser! There should be no cross-outs.)
3. On 8.5" x 11" lined or graph paper. ** Stapled if there are multiple pages.** Have assignment stapled before coming to class – I generally do not carry a stapler.
4. For all graphs, axes should be clearly labeled, with some indication of the scale. Rough sketches of graphs should be careful enough so that important information is correctly and accurately conveyed to the reader of the graph. Typically, important features include local extrema, concavity, asymptotes, holes, and correct implications about the behavior of the graph beyond the graphing window. Certain graphs will have to be done on graph paper. I will specify this when it is required. **See the graphing guidelines for more information.**
5. Unless specifically told otherwise, answers **must** be accompanied with an explanation. Explanations usually take the form of (1) algebra shown, (2) a graph, (3) a short written explanation, or (4) some combination of items 1 - 3. Any answer given with no explanation will receive no credit.
6. For all word problems, variables should be clearly defined. This means a precise definition (including units) of what each variable represents. Where appropriate, a picture/diagram should be included.
7. All written explanations should be written in clear and coherent English. Do not assume that I will know what you mean - I won't!

Class Work/Quizzes: Throughout the quarter there will be various in-class activities and/or quizzes to be performed either in groups or individually. Some will involve turning in group work to be graded for participation points. Quizzes will be announced in advance, however group work activities might not be. You must be present on the day in-class group activities are assigned to get credit for them. **In-class work cannot be made up for any reason.**

Final Grades: Your final average will be computed using the formula given below. Then, your final grade will be determined from the given table.

\[
\text{Final Average} = 0.20(\text{Activity \%}) + 0.15(\text{Exam 1 \%} + \text{Exam 2 \%} + \text{Exam 3 \%}) + 0.35(\text{Final Exam \%})
\]

<table>
<thead>
<tr>
<th>A: 92% - 100%</th>
<th>A+: 90% - 91.9%</th>
<th>B+: 88% - 89.9%</th>
<th>B: 82% - 87.9%</th>
<th>B-: 80% - 81.9%</th>
</tr>
</thead>
<tbody>
<tr>
<td>C+: 78% - 79.9%</td>
<td>C: 72% - 77.9%</td>
<td>C-: 70% - 71.9%</td>
<td>D: 60% - 69.9%</td>
<td>E: Below 60%</td>
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Classroom Policies:

Attendance: It is expected that you will attend class every day. If you are absent, it is your responsibility to submit any assignments due on that day and to learn about any announcements. Furthermore, it is expected that you will arrive to class on time each day. Showing up late to class on a consistent basis is rude to both me as well as to your classmates. Don't be rude!

Late Work: See specific assignment type for late-work policy.

Missed Exams/Quizzes: Exams/quizzes can be made-up only in cases of extreme emergency and if I am contacted BEFORE the exam/quiz is given. If the nature of the emergency is such that you cannot contact me before the exam, contact me as soon as possible, and I might be willing to make an exception. Please be prepared to provide documentation of your emergency (e.g., police report, note from doctor, etc.).

Dropping This Class: If you drop the class by April 8th, no grade will be reported. You may drop the class with a grade of 'W' through May 20th. After this date, you will not be able to drop the class.

Incompletes: After May 20th, an incomplete may be arranged in the case of an emergency. An incomplete will only be granted if the student is performing satisfactorily (C- or better). You will need to meet with me so that an Incomplete Contract can be written.

Cheating: Cheating (as defined by TCC's Academic Dishonesty Policy) on an exam or quiz will result in a grade of zero for that piece of work. A second occurrence will result in a grade of E for the course. The complete Administrative Process for Academic Dishonesty is available on the TCC website.

Cell Phones: Turn off your cell phones while you are in this class. It is rude and disruptive to have phones ringing during class and/or to be texting during class. If any student's cell phone is causing a distraction, I reserve the right to reduce that student's participation grade as a penalty. Multiple offenses could lead to an Activity Grade of zero.

Accommodations: All students are responsible for all requirements of the class, but the way they meet these requirements may vary. If you need specific auxiliary aids or services due to a disability, please contact the Access Services office in Building 7 (253-566-5328). They will require you to present formal, written documentation of your disability from an appropriate professional. When this step has been completed, arrangements will be made for you to receive reasonable auxiliary aids or services. Once the disability accommodation documentation is prepared by Access Services you should make an appointment to meet with me so that we can discuss the accommodations to be made. **DO NOT hand me your accommodation paperwork during class – you MUST come and talk with me in my office.**

Etiquette for Classroom Dispute Resolution: If you have questions or concerns about this class or me, please come to talk with me first. If we are unable to resolve your concerns, you may talk next with Valerie Morgan-Krick, the Chair of the Mathematics Department.

Caveats: This syllabus is subject to change in the event of extenuating circumstances. If changes are necessary, an addendum to the syllabus will be distributed via e-mail.