

Item #6478
Fall 2016

Math 153
17-101

Calculus III
M – F: 10 – 10:50am

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Office Hours

Monday	Tuesday	Wednesday	Thursday	Friday
8-8:50	8-8:50	8-8:50	9-9:50 (MRC)	9-9:50

Office hours are also available by appointment.

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Course Description: Third quarter of the Calculus sequence. Topics include calculus of parametric and polar functions, lines, planes and vectors in R^3 , the calculus of vector-valued functions, sequences and infinite series, power series and Taylor expansions.

Course Objectives: *The student will be able to ...*

1. Use derivatives to graph parametrically defined curves
2. Find areas and arc lengths for polar and parametric graphs
3. Test sequences for convergence
4. Test for convergence of infinite series and find the interval of convergence of power series
5. Find Taylor series expansions for functions
6. Apply properties of vectors, including dot and cross products
7. Graph elementary equations in three dimensions, find equations of lines and planes, and use vector properties to calculate distances and relationships for lines, points and planes
8. Solve problems involving applications of vector functions to motion in space
9. Calculate arc length, curvature, and tangential and normal components of acceleration

Text: *Calculus, Early Transcendentals (8th ed.)*, by James Stewart.

Prerequisite: Math 152 with a minimum grade of 2.0.

Calculators: A graphing calculator is required for this course.

- i. The TI-83/4 family of calculators is recommended. The use of symbolic calculators such as the TI-89 will not be allowed during exams. Furthermore, the use of all calculators may be prohibited during some exams (forewarning will be given).
- ii. Very limited class time will be spent explaining the use of calculators.
- iii. Calculators may be rented from the Math Department on a first come first serve basis.

Homework: The format and grading criteria for homework is as follows.

- i. **Enhanced Web Assign:** Graded homework will be administered online thru EWA. The website is: <https://www.webassign.net/login.html>
EWA Class Key: [highline.cc.wa](https://www.highline.cc.wa) 6182 4612 (You can try it out for two weeks).
- ii. **Submissions:** You may make up to five submissions on most problems. However some questions are multiple guess. In this case, you are generally only allowed 1 or 2 attempts.
- iii. **Multiple Guess:** Sections with a large number of multiple guess questions are marked with an asterisk (*). Sections 11.1-7 are primarily multiple guess in EWA. They are also quite challenging. So be prepared to work on this part of the homework.

- iv. **EWA Time:** Assignment times are the estimated amount of time a student spent online working on assignments. Time estimates are dependent upon student interaction with WebAssign. There is no way to account for the way a student spends the time between interactions or the time a student spends working offline. If a student walks away from the computer while working on a question without saving or submitting work the time estimate will be skewed by the time spent away from the computer. If a student works on an assignment while not logged into WebAssign then the time spent solving the question will not be accounted for.
- v. **Bonus:** If you complete homework exercises 24 hours in advance of the deadline, you will earn a 3% bonus on the problem.
- vi. **Extensions:** You may request a 24 hour extension on the homework *for the week after the original due date*. There is a 20% penalty on each problem completed using the extension.

Homework Quizzes:

- i. Homework quizzes will assess you on questions *exactly like* homework exercises (though the numbers may change) and will be based upon recently completed online homework.
- ii. Homework quizzes are open note (you may use your completed homework to help answer the questions).
- iii. Homework quizzes will last at most five minutes, begin at the outset of class, and may not be made up or taken late.
- iv. Your lowest score will be dropped to account for illness or other absences.
- v. Spoken and written communication as well as sharing of calculators is prohibited.

Tests: There will be midterm exams given during the quarter.

- i. The exams will be cumulative, but will emphasize the material covered since the last test.
- ii. If you miss a test, a score of 0% will be assigned. All tests must be taken during the scheduled class time. *No make-up tests*.
- iii. Spoken and written communication as well as sharing of calculators during exams is prohibited.

Final Exam: A comprehensive final exam will be held in the regular class meeting room. See the quarterly class schedule for dates and times. The final exam is mandatory and a grade of 0.0 may be assigned at the instructor's discretion to those who fail to take the final exam.

Grading: Online Homework: 10%, Homework Quizzes: 5%, Tests: 55%, Final Exam: 30%.
GPA's will be according to:

95-100%	4.0	%%%	GPA	%%%	GPA	%%%	GPA	%%%	GPA
93-4%	3.9	81%	3.1	73%	2.3	65%	1.5	57%	0.7
91-2%	3.8	80%	3.0	72%	2.2	64%	1.4	0-56%	0.0
89-90%	3.7	79%	2.9	71%	2.1	63%	1.3		
87-8%	3.6	78%	2.8	70%	2.0	62%	1.2		
85-6%	3.5	77%	2.7	69%	1.9	61%	1.1		
84%	3.4	76%	2.6	68%	1.8	60%	1.0		
83%	3.3	75%	2.5	67%	1.7	59%	0.9		
82%	3.2	74%	2.4	66%	1.6	58%	0.8		

Extra Credit: A 7% boost to your Final Exam score will be given for completing pre- and post-lecture assignments.

- 1) Pre-lecture (3.5%): Before each new section is lectured on, you must (by hand) make a copy of each vocabulary term (in bold) and definition/theorem (red box) in the given section of the text and submit them at the start of class. Each section should begin on a new page and be clearly organized and spaced. An example is provided below:
 - a) Your name
 - b) Title: 12.1: Three-Dimensional Coordinate Systems Pre-lecture notes
 - c) Vocabulary terms:
 - i) Coordinate
 - ii) Right-hand rule
 - iii) Coordinate planes
 - iv) Octants and first octant
 - v) coordinates
 - d) Definition/Theorems
 - i) Distance formula in three dimensions: The distance $|P_1P_2|$ between points $P_1(x_1, y_1, z_1)$ and $P_2(x_2, y_2, z_2)$ is $|P_1P_2| = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$
 - ii) Equation of a sphere: An equation of a sphere with center $C(h, k, l)$ and radius r is $(x - h)^2 + (y - k)^2 + (z - l)^2 = r^2$. In particular, if the center is the origin O , then an equation of the sphere is $x^2 + y^2 + z^2 = r^2$.
 - e) This is most valuable if done in a three ring binder. For maximum benefit, your class notes should follow the pre-lecture notes in the binder.
- 2) Post-lecture (3.5%): You must recopy your lecture notes (not your pre-lecture notes). The two versions do not need to be identical and the recopied version can be an improvement on the original notes. In order to receive credit, you must turn in both copies of notes. Recopied notes should be grouped together (each section being clearly labeled) in their own section of your three-ring binder. Both copies must be hand written unless prior arrangements are made. These are due at the start of each exam.
- 3) Using a three ring binder is not required, but is strongly encouraged because it will help you keep the pre-lecture theorem/definitions and refined classroom notes organized coherently.
- 4) This assignment may be begun at any time during the quarter, but late work will not be accepted.

Policies and Notes:

- i. **Attendance:** You are responsible for all material covered in class including all announced changes to the schedule and assigned course work. (If you miss class, *you* are still responsible for everything in class).
- ii. **Devices:** The use of non-human smart gadgets in class is discouraged (except when requested).
- iii. **Math Resource Center:** Cost-free mathematics tutoring is available at the MRC. The MRC is located in building 26, room 319.
- iv. **Faculty Advising:** Highline Community College instructors are a wonderful resource for students at any stage of the academic process. Many Highline instructors have career experience, are knowledgeable about campus resources, and can assist students in reaching their educational goals through degree planning. If you have an advising question, feel free to approach your instructor. If your instructor cannot answer your question, s/he will help you find someone who can.
- v. **Academic Dishonesty:** Cheating, plagiarism, and other forms of academic dishonesty are unacceptable at Highline Community College and may result in lower grades and/or disciplinary action. It is both your right and responsibility to be familiar with the document entitled: Student Rights and Responsibilities code WAC 132I-1210 adopted by the Board of Trustees of Community College District 9 on December 13, 2007. This is available in the counseling center.
- vi. **Special Concerns:** If you have any special concerns about this class, please talk to me personally in my office. The more I know about you individually, the more I can help you be successful in this course. If you need course adaptations or accommodations because of dis-Ability; if you have emergency medical information to share with me; or if you need special arrangements in case the building must be evacuated, please provide me with the Letter of Accommodation you have received from the Office of Access Services. Access Services is located in Building 99 in the Student Development Center.
- vii. **Emergency Procedures:** In the event of an emergency, follow your instructor's directions. If you are told to evacuate the building, take your valuables because you may not be allowed to re-enter. Do not leave campus until your instructor or another campus official tells you to do so. If you may need assistance evacuating, notify your instructor today. To prepare yourself for an emergency, review the evacuation map on the last page of the emergency placard in your classroom and subscribe to HC Alert at <https://hctextalerts.highline.edu/>.
- viii. **Final Exams:** Your completed final exam will not be returned to you. It belongs to the instructor. However, you may (and should) review your final exam by stopping by the instructor's office the next quarter.
- ix. **School Policies:**
 - i. The Student Rights and Responsibilities Code: A legal document that describes college expectations, students' rights, and outlines the process for resolving disciplinary matters and Code violations. <http://studentservices.highline.edu/srr.php>
 - ii. The College Catalog: Lots of fine print about grades, deadlines, and resources can be found in the catalog at: <http://catalog.highline.edu/>
- x. **Important Dates (dates should be verified online):**
 - i. October 17th: The last day to drop without incurring a "W"
 - ii. October 6th: Financial Aid Applications for Winter Quarter are due
See <https://financialaid.highline.edu/> for more information about Financial Aid
 - iii. November 1st: The beginning of registration for Winter Quarter
 - iv. November 18th: The last day to officially withdraw with a "W"