Item #6507	**Math 153**	**Calculus III**	
Winter 2017	**17-104**	**M – Th: 11 – 12:05pm**	

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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 R3, 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 4342 5949 (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. **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.

Quizzes: See the schedule for the tentative dates and times.
i.   There are no make-up quizzes.
ii.   It is very important that you are on time for group quizzes. If you are more than five minutes late, there will be a penalty. 5 minutes => 5% penalty. 6 minutes => 6% penalty …
iii. If you miss a quiz, 75% of your next quiz will be used in its place (you must remind me).
iv.   If you miss a second quiz, a score of 0% will be assigned.
v.   Spoken and written communication as well as sharing of calculators during exams 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%, 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: Before each new section is lectured on, you must (by hand) make a copy of each vocabulary term (in bold) and definition/theorem (blue 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) Some sections do not have blue boxes. For example, in section 12.6, you would include Table 1: Graphs of Quadric Surfaces in your pre-lecture notes.
   f) 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: 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: <u>Student Rights and Responsibilities</u> 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.

ix. **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.

x. **School Policies**:

    i. The <u>Student Rights and Responsibilities Code</u>: 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 <u>College Catalog</u>: 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. January 13th: Last Day for 100% Tuition Refund

    ii. January 30th: The last day to drop without incurring a "W"

    iii. February 9th: Financial Aid Applications for Spring Quarter are due
        See https://financialaid.highline.edu/ for more information about Financial Aid

    iv. February 14th: The beginning of registration for Spring Quarter

    v. March 10th: The last day to officially withdraw with a "W"