

# MATH 2654, Calculus III, Summer 2015

**Section:** 01      **Hours Credit:** 4 hours

**Room and Hours:** Boyd 303: MW, 2:00 pm – 4:30 pm and  
Boyd 303: F, 12:00 pm – 1:40 pm

**Prerequisite:** MATH 2644 with C or better

**Instructor:** Dr. Kwang Shin

**Office Hours:** MW (9:30 am – 10:00 am, 11:50 am – 2:00 pm, 4:30 pm – 5:00 pm) and F (1:40 pm – 3:00 pm), or by appointment.

**Office:** 311 Boyd      **Phone:** 678-839-4138

**E-mail:** [kshin@westga.edu](mailto:kshin@westga.edu) through your campus e-mail (myUWG).

**Course Webpage:** <http://www.westga.edu/~kshin/2654/>

**Course Description:** Vectors, vector-valued functions, functions of two or more variables, partial derivatives, multiple integrals, vector fields, line and surface integrals, Green's theorem, Stokes' theorem, and divergence theorem.

**Text:** Stewart, *Multivariable Calculus, Early Transcendentals, 7th Ed.* We will cover Chapters 12-16.

**Learning Outcomes:** Students should be able to

1. Perform basic vector operations such as addition, subtraction, scalar multiplication, dot product, cross product, norm, or projection onto another given vector.
2. Use the dot product or cross product to find angle between two vectors.
3. Determine the components of a given vector that are parallel and orthogonal to another given vector.
4. Find equations of lines, planes, and spheres in 3-space given geometric information about them.
5. Differentiate and integrate vector-valued functions.
6. Find the length of a curve in 3-space.
7. Find curvature, tangential acceleration, and normal acceleration for an object moving along a curve in 3-space.
8. Find partial and directional derivatives of a function of several variables.
9. Find and classify local and absolute extrema of a function of several variables.
10. Use Lagrange multipliers to find extreme values of a function of several variables subject to a constraint.
11. Evaluate an iterated integral of a function of several variables.
12. Determine the limits of integration of a double or triple integral given the region of integration.
13. Change variables in a double integral from rectangular coordinates to polar coordinates or in a triple integral from rectangular to cylindrical or spherical coordinates.
14. Use double and triple integrals to find masses, centers of mass, and moments of inertia.
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16. Determine if a vector field is conservative.
17. Evaluate a line integral directly and, in the case of a conservative vector field, using the Fundamental Theorem of Line Integrals.
18. Evaluate a line integral over a closed curve using Green's Theorem.
19. Evaluate a surface integral directly and using Stokes' Theorem.
20. Evaluate a surface integral over a closed surface either directly or using the Divergence Theorem.

**Hour Exams:** Exam 1 (Fri, June 19), Exam 2 (Fri, July 3), Exam 3 (Fri, July 17).

**Final Exam:** Thursday, July 24, 3:00 pm - 5:00 pm. The final exam will be cumulative.

**Homework:** Homework will be assigned every day and posted at the course website. Homework will be collected at the beginning of the next class for grade. Doing homework in timely fashion is essential for the success in this course. Partial credit will be considered for incomplete work. However, late submission will receive zero point. The total homework score will be converted to a 70 point scale at the end of semester.

**Quizzes:** There will be a quiz on almost every other day, consisting of problems that are almost identical to homework problems. Each quiz will be 10 points and two lowest scores will be dropped. If needed, the total quiz score will be converted to an 80 point scale at the end of semester.

<b>Grade Scale:</b>	3 hour exams	300 points (100 points each)
	Quizzes	80 points
	Homework	70 points
	Final	200 points

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Total 650 points

A: 585 - 650, B: 520 - 584, C: 455 - 519, D: 357 - 454, F: 0 - 356

**June 23** is the last day to withdraw from a class with a grade of W.

**Make-up:** There will be no make-up quiz. In general, make-up exams will not be given after the scheduled exam date. There will be no make-up final except when a conflict with other finals occurs. If a conflict occurs to you, please inform the instructor at least two weeks in advance. Make-up hour exams will be granted for official university activities if the student notifies the instructor at least a week in advance and for well-documented illness.

**Attendance and Pop-up Quizzes:** Attendance is required and expected. Students are responsible for all material covered in class and all announcements made. An undetermined number of pop-up quizzes may be given for extra points. Such a quiz will consist of one problem, discussed during the same class. *It will count as absent if you are not present when the attendance is checked. Attendance can be used for bonus points at the end.*

**Classroom Behavior:** You are expected not to disturb your classmate's learning. No phone or computer use during class without instructor's permission.

Also, please carefully review the following information at <http://tinyurl.com/UWGSyllabusPolicies> or [http://www.westga.edu/assetsDept/vpaa/Common\\_Language\\_for\\_Course\\_Syllabi.pdf](http://www.westga.edu/assetsDept/vpaa/Common_Language_for_Course_Syllabi.pdf). It contains important material pertaining to your rights and responsibilities in this class. Because these statements are updated as federal, state, university, and accreditation standards change, you should review the information each semester.