MATH 2415
Student Course Document – Revised Spring 2012

1. **Course Title:** Calculus III
2. **Prerequisite:** Math 2414
   Engl 0305 or 0316 (developmental reading) or placement by testing

3. **Credit:** Four (4) semester hours

4. **Materials Needed:**
   4.1 **Textbook:** *Thomas’ Calculus*, 12th ed.: George B. Thomas, Jr., 2008 Pearson Education
   4.2 **Optional** *Student’s Solutions Manual*, Part Two, Ardis, Borzellino, and Nelson
   4.3 **Calculator:** Students may find it helpful to own a graphing calculator such as a TI-83 or TI-85. Each instructor will announce his/her specific policies concerning classroom usage of calculators during the first week of the semester. As a minimum, all students should have a scientific calculator.

5. **Purpose:**
Math 2415 is the study of multivariable Calculus. In its development, the student will acquire the necessary skills in vectors, solid analytic geometry, and multivariable functions for an in-depth study of differentiation and integration of functions in two and three variables. Included are such topics as directional derivative, extreme value problems, multiple integration, vector calculus, Stokes’ Theorem, and Divergence Theorem.

6. **Major Course Objectives:**
   6.1 Develop skill in the operations of vectors in 3-space.
   6.2 Acquire a basic understanding of Quadric surfaces graphically and algebraically.
   6.3 Study selected topics of solid analytic geometry pertaining to lines and planes.
   6.4 Work with alternate coordinate systems of 3-space including cylindrical and spherical.
   6.5 Develop the calculus of multivariable functions including such topics as: level curves and surfaces, limits and continuity, partial derivatives, the Chain Rule, directional derivatives, the gradient, tangent planes, differentials, relative extrema, and Lagrange Multipliers.
   6.6 Develop the concept of multiple integrals by considering such topics as: iterated integrals, double integrals in rectangular and polar coordinates, triple integrals in rectangular, cylindrical and spherical coordinates, and applications of integration including volume, center of mass, and moments of inertia.
   6.7 Develop the concepts of line and surface integrals, in vector and scalar form with an emphasis on Green’s, Stokes’, and the Divergence Theorems.

7. **General Course Outline:**
Chapters 12, 13, 14, 15, and 16

8. **Honors by Contract:**
Students with demonstrated high ability and interest in math and science may receive honors credit in Math 2415 by signing and fulfilling all conditions of an Honors Contract. Students who elect this option will complete all work assigned to other students in class. In addition, the honors student will have the opportunity to solve an interesting honors problem proposed by their advisor. With the advisor’s guidance, honors students work in a research-type situation to solve the problem and apply this solution to an open-ended extension. Honors students are exposed to the beauty and artistry, which is present in mathematics. Interested students should contact their instructor or the math department during the first week of the semester.
9. **MyLoneStar:**

MyLoneStar gives students, faculty, and staff access to important academic information. It allows a student to register, search for courses, obtain financial aid information, pay tuition and fees, and view course grades. From [www.lonestar.edu](http://www.lonestar.edu), click on MyLoneStar at the top right corner. Follow the instructions for securing your user name and password under the Self-Service Tools. Please contact the helpdesk at 1-866-614-5014 or send an email to ots@lonestar.edu for further assistance.

10. **Withdrawal Policy/Student Drop Limit:**

Students who enrolled in Texas public institutions of higher education as first-time college students during the Fall 2007 term or later are subject to section 51.907 of the Texas Education Code, which states that an institution of higher education may not permit a student to drop (withdraw with a grade of “W”) from more than six courses. This six-course limit includes courses that a transfer student has previously dropped at other Texas public institutions of higher education if they fall under the law.

Students should be sure they fully understand this drop limit before they drop a course. Please visit the admissions office or counseling/advising center for additional information and assistance.

11. **Academic Integrity:**

The Lone Star College System upholds the core values of learning: honesty, respect, fairness, and accountability. The system promotes the importance of personal and academic honesty. The system embraces the belief that all learners—students, faculty, staff, and administrators—will act with integrity and honesty and must produce their own work and give appropriate credit to the work of others. Fabrication of sources, cheating, or unauthorized collaboration is not permitted on any work submitted within the system.

The consequences for academic dishonesty are determined by the professor and academic dean, or the professor and chief student services officer and can include but are not limited to:

1. Having additional class requirements imposed,
2. Receiving a grade of zero or “F” for an exam or assignment,
3. Receiving a grade of “F” for the course,
4. Being withdrawn from the course or program,
5. Being expelled from the college system.

12. **Division Counselor:**

Rhonda Cannon, Counselor for Math and Natural Sciences, is available in Winship 115G to assist you in meeting your academic, career, and personal goals. Confidential counseling services are available by appointment to help you overcome academic challenges, make a career choice, plan your transfer, and to gain self-understanding. To schedule an appointment call 281-618-5480 or email rhonda.cannon@lonestar.edu or stop by Winship 115G.

* It is the responsibility of the student to drop a class by “W” day if he/she desires.

* Students with disabilities, who wish to request accommodations in this class, must notify the Disability Services Office as soon as possible so that the appropriate arrangements may be made. Students requesting accommodations must provide documentation of his/her disability to a Disability Services counselor. For more information, call or visit the Disability Services Office at SB 110, (281) 618-5481.