Syllabus (Fall 2019)

**MAT 268 – Calculus III**

**Tuesday and Thursday, 5:00-6:40, Room D-230**

**Course Information**

* **Instructor Information**

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| Roxanne Tisch  Office: C-248  Phone: 215-9480 (Not preferred method of communication – use email)  Email: rtisch@trcc.commnet.edu | Office Hours: To be announced |

* **Course Description**

Prerequisite: MAT 256

This third semester of calculus is intended for students who plan on majoring in mathematics, science or engineering technologies. It exposes students to the calculus of several variables. Topics include vectors, dot and cross product, equations of lines and planes, functions of several variables, limits and continuity, partial derivatives, chain rule, gradient, maximizing and minimizing functions of several variables, Lagrange multipliers, multiple integrals, polar, cylindrical, spherical coordinate systems, vector fields, line integrals, Green's and Stokes' and the Divergence Theorems.

* **Required Materials**

Text: *Calculus, Early Transcendentals*, 8th Ed. by James Stewart

* **Learning Outcomes**

Upon successful completion of this class a student should be able to:

* Perform the operations on vectors, find dot and cross products
* Find the equations of lines and planes
* Describe and sketch cylinders and quadric surfaces
* Sketch the plane curve with a given vector equation
* Find the derivatives and integrals of vector functions
* Find the length of the curve and curvature
* Solve problems on motion in space
* Find the domain of a function in several variables, sketch its graph
* Find the limit of the function in several variables, determine the set of points at which the function is continuous
* Find the partial derivatives of the functions
* Find an equation of the tangent plane to the given surface at the specified point
* Find the linear approximation of the function
* Use the Chain Rule to find the derivative of the function
* Find the directional derivatives and gradient vector of the function
* Find maximum and minimum values of the function
* Use Lagrange multipliers to find the maximum and minimum values of function subject to the given constraint(s)
* Evaluate double integrals, double integrals in polar coordinates
* Evaluate triple integrals, triple integrals in cylindrical and spherical coordinates
* Evaluate the integrals by making an appropriate change of variables in multiple integrals
* Sketch the vector fields
* Evaluate the line integrals
* Evaluate the line integrals by using Green’s Theorem
* Find the curl and divergence of the vector field
* Find the parametric representation of the surface and its area
* Evaluate the surface integrals
* Use Stokes’ Theorem to evaluate surface integrals
* Use the Divergence Theorem to evaluate surface integrals

**Grading**

* **Methods of Evaluation**
* **Tests (60%)** – You will have 3 unit tests throughout the semester. Test dates are indicated in the calendar. You will have reviews given out before tests. A review is meant to prepare you for the test, not be an exact replica of the test. The reviews will be longer than the test.
* **Final Exam (20%)** – There will be a cumulative final exam. The exam will take place on the last day of class as indicated in the calendar.
* **Homework and Other Assignments (20%)** – Homework will be assigned weekly.
  + Suggested problems will not be collected. Doing suggested problems is the best way to ensure thorough mastery of the material and to prepare for tests.
  + Hand-in Assignments will be assigned and collected weekly.

You might have a short quiz (announced or unannounced) at the start of class.

* **Grading Policies**

**Late Work**: Written homework is due at the beginning of class. The beginning of class is defined by the start time of the class not the time that you arrive. **Assignments are NOT accepted late!** If you send a picture of the homework via email before the beginning of class, you can turn in the hard copy the next class.

* **Missed Work Make-Up Policy:** If you miss a class, you are responsible for getting the class notes, homework, and any other assignments from another student and completing that work by the next class.

Make-up exams may be given *with my prior consent*. If you must miss a test/exam, please speak with me before the date of the exam so that arrangements can be made. The test must be completed before the next class meeting.

* **Extra Credit:** There will be no extra credit assignments.
* **Letter Grade Equivalents**

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| **Grade** | **Percent of  Points Earned** |
| A# | 93-100 |
| A-# | 90-92 |
| B+# | 87-89 |
| B# | 83-86 |
| B-# | 80-82 |
| C+# | 77-79 |
| C# | 73-76 |
| C-# | 70-72 |
| D# | 65-69 |
| F# | Below 65 |
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**Classroom Policies**

* **Attendance:** Attendance and participation in classwork is required to be successful in this class.
* **Communication:** All communication will occur by email. Please make sure that you check your TRCC email or set it up to forward to another account. Check your email regularly to be informed of any changes in schedule.
* **Class Cancellation:**

**If school is cancelled**, notification of cancellation due to inclement weather will be available by telephone by 6:00 am for daytime classes and by 2:30 pm for evening classes by calling the College's main telephone at (860) 215-9000, pressing 1, and listening to the taped announcement. The College’s website will also have announcements available by accessing the www.threerivers.edu home page. The myCommnet Alert Notification System will also be used to deliver important information regarding weather-related class cancellations, via both email messages and text messages, to registered individuals. To register, log on to your myCommnet account at http://my.commnet.edu/ and follow the link to myCommnet Alert.

**If class is cancelled by the instructor**, a notice will be placed on the classroom door. If time permits, students may be notified by a message via email.

* **Withdrawal Policy:** You may withdraw from this class any time up to and including November 5 and you will receive a W grade on your transcript. However, you must complete a withdrawal form in the Registrar’s Office at the time of withdrawal; *if you merely stop attending classes you will be assigned a grade of F*. Any eligibility for refund of tuition is based on the date that the registrar receives the withdrawal.
* **Academic Integrity:** The effective operation of any organization is dependent on the honesty and goodwill of its members. In an organization devoted to the pursuit of knowledge, acting with integrity is essential to effective teaching and learning. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. To emphasize the importance of academic integrity, Three Rivers Community College adheres to the Student Code of Conduct and Discipline Policy, as provided by the Connecticut State Colleges and Universities (CSCU) - Board of Regents for Higher Education. (Please refer to BlackBoard for the complete statement.)

**Some** of the behaviors that will be considered cheating are:

* + Communicating with another student during a quiz or exam
  + Copying material from another student during a quiz or exam or from any assignment being graded
  + Allowing another student to copy from your quiz, exam, or any assignment being graded
  + Use of unauthorized assistance on any assignment being graded
  + Use of unauthorized notes or books during a quiz or exam
  + Providing or receiving a copy of a quiz or exam used in the course
  + Use of a cell phone or pager to transmit information during a quiz or exam

**Tentative Schedule**

Schedule will be distributed on Thursday, August 29.

**Course Outline**

**Book: Calculus, Early Transcendentals, 8th Ed. by James Stewart**

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| **Chapter 12**  12.1 Three-Dimensional Coordinate Systems  12.2 Vectors  12.3 The Dot Product  12.4 The Cross Product  12.5 Equations of Lines and Planes  12.6 Cylinders and Quadric Surfaces |
| **Chapter 13**  13.1 Vector Functions and Space Curves  13.2 Derivatives and Integrals of Vector Functions  13.3 Arc Length and Curvature  13.4 Motion in Space: Velocity and Acceleration |
| **Chapter 14**  14.1 Functions of Several Variables  14.2 Limits and Continuity  14.3 Partial Derivatives  14.4 Tangent Planes and Linear Approximation  14.5 The Chain Rule  14.6 Directional Derivatives and the Gradient Vector  14.7 Maximum and Minimum Values  14.8 Lagrange Multipliers |
| **Chapter 15**  15.1 Double Integrals over Rectangles  15.2 Double Integrals over General Regions  15.3 Double Integrals in Polar Coordinates  15.6 Triple Integrals  15.7 Triple Integrals in Cylindrical Coordinates  15.8 Triple Integrals in Spherical Coordinates  15.9 Change of Variables in Multiple Integrals |
| **Chapter 16**  16.1 Vector Fields  16.2 Line Integrals  16.3 The Fundamental Theorem for Line Integrals  16.4 Green’s Theorem  16.5 Curl and Divergence  16.6 Parametric Surfaces and Their Areas  16.7 Surface Integrals  16.8 Stokes’ Theorem  16.9 The Divergence Theorem |

**School Policies**

Please refer to BlackBoard or the TRCC website for a link to the entire policy.

* **Digication:** All students are required to maintain an electronic portfolio using the College template within Digication. Digication can be accessed at https://threerivers.digication.com.
* **Disability:** Three Rivers Community College (TRCC) is committed to the goal of achieving equal educational opportunity and full participation for individuals with disabilities. To this end, TRCC seeks to ensure that no qualified person is excluded from participation in, is denied the benefit of, or otherwise is subjected to discrimination in any of its programs, services, or activities.
* **Non-discrimination:** Three Rivers Community College does not discriminate on the basis of race, color, religious creed, age, sex, national origin, marital status, ancestry, present or past history of mental disorder, learning disability or physical disability, sexual orientation, gender identity and expression, or genetic information in its programs and activities.
* **Sexual Misconduct:** The Board of Regents for Higher Education (BOR) in conjunction with the Connecticut State Colleges and Universities (CSCU) is committed to ensuring that each member of every BOR governed college and university community has the opportunity to participate fully in the process of education free from acts of sexual misconduct, intimate partner violence and stalking.