SYLLABUS MATH 2414 Calculus II
Spring 2017

MATH 2414 –030 8:00-8:50 MWF
8:00-9:15 TR

MATH 2414 –040 9:00-9:50 MWF
9:25-10:40 TR

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Catalog Description: Applications of integration, integration techniques, sequences and infinite series, power series, parametric and polar curves. Use of computer technology and laboratory assignments will be required in this course. Prerequisite: MATH 2413.

Course Prerequisites: Math 2413

Textbook & Materials: Students may select one of the following two text options:

- (Single Variable) Calculus: Early Transcendentals, 7th edition, by Stewart
- e-book, (Single Variable) Calculus: Early Transcendentals, 7th edition, by Stewart

Supplemental textbook: A free supplemental textbook is available at https://openstax.org/subjects/math. Select "Calculus Volume II."

Student Learning Outcomes: Upon completion of this course, the student will demonstrate proficiency in
These areas:
a) Students will identify, sketch, and label the graphs of implicitly and explicitly defined equations of conic sections in rectangular as well as polar coordinates.
b) Students will extend the concepts and techniques learned in MATH 1204 (limits, derivatives and integrals) to solve problems involving inverse functions, transcendental functions, as well as curves defined by parametric equations and in the polar coordinate environment.
d) Students will select and apply an appropriate integration technique to evaluate integrals.
f) Students will formulate the proper equation of a conic section when provided with adequate information about the conic section.
h) Students will determine the convergence or divergence of an infinite series.
i) Students will determine the radius and/or interval of convergence of a power series.
j) Students will derive the power series representation for a given function.

Major Tests: We will have four (4) chapter exams during the semester and a comprehensive final at the end of the semester.

Grading System:

4 Major Exams	15% each
Homework/classwork	10%
Technology Lab work	10%
Comprehensive Final	20%

Grading Scale: 90 – 100 A 80 – 89 B 70 – 79 C 60 – 69 D 0 – 59 F

Technology Lab Work: Exercises and problems will be given involving the use of *Mathematica* software.

Homework: Assignments may be given from the exercises in Stewart or from the free online homework site WeBWork. A few of these grades may be dropped at the end of the term.

Makeup Policy: Students may request make-up consideration for valid and **documented** reasons such as illness, death in the immediate family, legal proceedings, or participation in University-sponsored activities. In the event that you are absent other than for reasons outlined above, you will receive a grade of 0. The final exam score may replace **one** low major exam grade, provided that the score on the final is better than the low or missed exam.

University Email Policy: Your university email address is now the official means of electronic mail communication. Personal email addresses will no longer be used to contact students. According to Tarleton State University's Email Communication Guidelines, "official communications will be sent to the recipients' official University email address. Students are expected to check their email on

a frequent and consistent basis ..." If you have not claimed your Tarleton email account, please contact the Computer Helpdesk at (254) 968-9885 as soon as possible.

University Policy: Students are responsible for knowing and abiding by the policies and information contained in the Tarleton Student Handbook. [See the TSU Student Handbook]

Student Responsibilities: The student is *solely* responsible for:

- Completing each assignment by the specified due date.
- Obtaining assignments and other materials for classes from which they are absent.
- Utilizing, as needed, all available study-aid options (including meeting with the instructor, referring to outside texts, etc.) to resolve any questions that they might have regarding homework, course material, and/or projects.
- Giving as much of an effort as it takes to pass this course.

Academic Conduct: Any student guilty of academic dishonesty, cheating, or plagiarism in academic work shall be subject to disciplinary action. [TSUSH] The instructor may initiate disciplinary action in any case of academic misconduct. In the case of cheating on an exam, a grade of zero shall be assigned to the exam, and this score may not be replaced by the final exam score in calculating the semester average.

Core Values:
Tarleton State University's core values are integrity, leadership, tradition, civility, excellence, and service. Central to these values is integrity, which is maintaining a high standard of personal and scholarly conduct. Academic integrity represents the choice to uphold ethical responsibility for one's learning within the academic community, regardless of audience or situation.

Services for Students with Disabilities: It is the policy of Tarleton State University to comply with the Americans with Disabilities Act and other applicable laws. If you are a student with a disability seeking accommodations for this course, please contact the Center for Access and Academic Testing, at 254.968.9400 or caat@tarleton.edu. The office is located in Math 201. More information can be found at www.tarleton.edu/caat or in the University Catalog.

Attendance Policy: Regular and punctual class attendance is expected of all students. If excessive absences prevent satisfactory progress, a recommendation for withdrawal from the course may be made.

Cell phones: Students are expected to set their cell phone so as to emit no audible noise in the classroom. Except for emergency situations, cell phone use (including texting) during the class period is prohibited. A student who is noticeably (to the instructor) distracted by his/her cell phone and/or distracting others with it may be asked to immediately disable it or to leave the classroom. To compensate for your electronic deprivation, keep your calculator on.

Calculator Policy: Each student will be required to have an approved graphing calculator available for use. The TI-84 is my recommended choice, but other TI models (TI-*n*spire, TI-83+, TI-86, etc.) or other brands are acceptable. I will use primarily the TI-84 in the classroom. Students using other brands are responsible for learning how to operate their calculators. The instructor reserves the right to prohibit the use of calculators on certain assignments or tests. A limited number of calculators are available for rent from the Math Club. Students should see the Math Office (MATH 142) for more information.

Study Aids:

- The Mathematics Clinic offers to all students enrolled in remedial and freshman-level mathematics courses an opportunity to obtain free tutoring. The Math Clinic is located in room 203. Its hours are posted on the door.
- The university offers several programs through which students may obtain free or reduced-fee private tutoring. Interested students should visit Student Success Services for more details.
- The department maintains a list of students that are interested in tutoring privately, which may be accessed via the department's web page.

Notes:

- In the event that the university is closed for a scheduled class time, whatever was scheduled for that day and/or whatever was due that day will be scheduled and/or due on the next scheduled class time. University closure and emergency information is sent to all students, faculty, and staff through Code Purple. All students are automatically enrolled in Code Purple through their Tarleton email address. See http://www.tarleton.edu/codepurple for more information
- **All items contained in this syllabus are subject to change as the semester progresses. Students will be notified of any changes.**

Math 2414 Prospective Calendar (Subject To Change)

Week	Section	
1		Review of Calc I
	6.1	Areas Between Curves
	6.2	Volumes
2	6.3	Volumes by Cylindrical Shells
	6.4	Work
	6.5	Average Value of a Function
3	8.1	Arc Length
	8.2	Area of Surface of Revolution
	8.3	Applications to Physics and Engineering
4	Review	
	Test 1	Chapter 6, 8.1-8.3
	7.1	Integration by Parts
	7.2	Trigonometric Integrals
5	7.3	Trigonometric Substitution
	7.4	Integration of Rational Functions by Partial Fractions
	7.7	Approximate Integration
6	7.5	Strategies for Integration
	7.6	Integrals Using Tables and CAS
	7.8	Improper Integrals
	10.1	Curves Defined by Parametric Equations
7	10.2	Calculus with Parametric Curves
	10.3	Polar Coordinates
	10.4	Areas and Lengths in Polar Coordinates
8	10.5	Conic Sections
	10.6	Conic Sections in Polar Coordinates
	Review	
	Test 2	Chapter 7, 10
9	11.1	Sequences
	11.2	Series
	11.3	The Integral Test and Estimates of Sums
10	11.4	Comparison Tests
	11.5	Alternating Series
	11.6	Absolute Convergence, Ratio and Root Tests
	11.7	Strategy for Testing Series
11	Review	
	Test 3	Chapter 11.1-11.7
	11.8	Power Series
12	11.8	(cont)
	11.9	Representations of Functions as Power Series
	11.10	Taylor and Maclaurin Series
13	11.10	(cont)
	11.11	Applications of Taylor Polynomials
14	Review	
	Test 4	Chapter 11
	Optional Topics	
15	Review for Final	

Final Exam times

Section 030 -- 8:00-10:30 am, Tuesday, May 9, 2017
Section 040 – 8:00-10:30 am, Saturday, May 6, 2017

Special Dates in spring 2017 semester

Thursday, April 6	Service Day; classes dismissed between 7am and 5pm
Friday, April 14	No classes

Mathematica Labs (subject to change)

Lab	Topic
1	Area between curves
2	Volumes
3	Average value
4	CAS integration
5	Approximate integrals
6	Parametric curves
7	Polar curves
8	Sequences and series
9	Power series
10	Taylor polynomials
11	Summary