

**Course number, title and credits; total time allocation**

Course Letter/Number	<u>MAT 154</u>	Credits	<u>5</u>	Title	<u>Calculus II</u>
Lecture/Discussion	<u>5</u>	hrs/semester	Lab	hrs/semester	Clinical
				er	hrs/semester

**Catalog Description and Pre- and Co-requisites (Same as taxonomy and catalog)**

Explore the following topics: methods and applications of the derivative and integral for inverse trigonometric and hyperbolic functions, indeterminate forms, series, and polar/parametric representation of functions. Graphing calculator required. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old, then the recommendation is that the course placement exam be taken or the prerequisite be retaken to ensure the success of the student. Prerequisite: MAT 151\*

Prerequisite: MAT 151, with 2.0 minimum, within 2 years

**Knowledge, Skills and Abilities Students Acquire from this Course (Educational Objectives)**

1. Apply calculus to standard applications. Applications may include volumes of solids of revolution, arc length, work, force, centroids, and differential equations.
2. Understand multiple techniques for integration including: substitution, tables, parts, partial fractions, and trigonometric substitution.
3. Understand sequences and series; identify manipulate, and test the convergence of various series including geometric, arithmetic, p-series, alternating, power, Taylor, and Maclaurin.
4. Perform calculus in polar coordinates and with parametric equations.
5. Apply appropriate technology in all of the above areas.

**Associate Degree Outcomes Addressed in this Course (These must appear in course syllabus.)**

- ADO 3: Demonstrate computational skills and mathematical reasoning
- ADO 7: Critical Thinking and Problem Solving

**Units/topics of Instruction**

See course description and educational objectives.

**Instructional Techniques and Procedures**

Although techniques vary from instructor to instructor, this course usually consists of mostly lecture and group work.

**Instructional Use of Computer or Other Technology**

A graphing calculator is used extensively in this course. The instructor may choose to incorporate the use of EnhancedWebAssign in homework, quiz and test assignments. Also, the instructor may choose to incorporate the use of MAPLE in graphing functions and solving various application problems.

**Instructional Materials and Costs to Students**

The instructional material for this course consists of the textbook and a graphing calculator.

**Skills and abilities students should bring to the course**

Able to read	<input type="checkbox"/> a limited amount of material <input checked="" type="checkbox"/> an average amount of material <input type="checkbox"/> an above average amount of material	Able to compute	<input type="checkbox"/> basic, pre-algebraic problems <input type="checkbox"/> simple algebraic problems <input checked="" type="checkbox"/> higher order mathematical problems
Able to read	<input type="checkbox"/> relatively easy material <input type="checkbox"/> moderately difficult material <input checked="" type="checkbox"/> technical or sophisticated material	Able to write	<input checked="" type="checkbox"/> short compositions <input type="checkbox"/> medium length compositions <input type="checkbox"/> lengthy compositions
Able to use technology	<input checked="" type="checkbox"/> keyboard skills/familiar with computer <input checked="" type="checkbox"/> computer application <input checked="" type="checkbox"/> web navigation	Other necessary abilities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

**The course is usually scheduled**Day: ☐ Fall ☒ Winter ☒ SpringEvening: ☐ Fall ☒ Winter ☐ Spring

Prepared by \_\_\_\_\_

Date \_\_\_\_\_

Approved by Dept. \_\_\_\_\_

Date \_\_\_\_\_

Approved by Dean \_\_\_\_\_

Date \_\_\_\_\_

Approved by Curr. Comm. \_\_\_\_\_

Date \_\_\_\_\_

(Last names, please)

Form Revised 12/4/00