

**Marshall University**  
**MTH 140H: Applied Calculus Honors (WI)**

<b>Semester and Year</b>	Fall 2015
<b>Course Title</b>	Applied Calculus Honors
<b>Course Number</b>	MTH 140H
<b>Section Number</b>	101
<b>CRN</b>	3063
<b>Days and Time</b>	Monday, Wednesday, Friday: 12:00pm – 12:50pm
<b>Location</b>	Smith Hall 509
<b>Credit Hours</b>	3
<b>Prerequisites</b>	ACT Math 25; SAT Math 580; C or better in MTH 127; MTH 130E; MTH 130; MTH 130H; or MTH 132
<b>Professor</b>	Dr. Anna Mummert
<b>Office</b>	Smith Hall 719
<b>Phone</b>	304 696 3041
<b>E-mail</b>	mummerta@marshall.edu
<b>Office Hours</b>	Monday 1:00pm – 3:00pm; Wednesday 10:00am - 11:00am and 1:00pm – 3:00pm; other hours by appointment
<b>University Policies</b>	<p>By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to</p> <p style="text-align: center;"><a href="http://www.marshall.edu/academic-affairs/policies/">http://www.marshall.edu/academic-affairs/policies/</a></p> <p>Academic Dishonesty, Excused Absence Policy for Undergraduates, Computing Services Acceptable Use, Inclement Weather, Dead Week, Students with Disabilities, Academic Forgiveness, Academic Probation and Suspension, Academic Rights and Responsibilities of Students, Affirmative Action, and Sexual Harassment.</p>

### Course Description

MTH 140H - Applied Calculus Honors (WI). A brief survey of calculus including both differentiation and integration with applications. This honors course will also introduce topics from differential equations with applications. 3 hours.

### Honors (H)

This course has an honors designator (H) and is limited to students in the Honors College. This course differs from MTH 140 by having an explicit focus on population dynamics and population modeling. To the extent possible, all the concepts in this course will be explored through the lens of changing population size.

## Writing Intensive (WI)

This course has a writing intensive designator (WI) and by taking this course you will earn 3 WI credits. During this course you will use graded, ungraded, revised, and unrevised writing during class, and on in-class work, homework, quizzes, exams, and projects to explore and enhance your understanding of calculus.

## Course Learning Outcomes

Student Learning Outcomes for this course	How students will practice each outcome in this course	How student achievement of each outcome will be assessed in this course
Students will identify and use functions appropriately.	In class activities, Homework	Exams
Students will describe the main ideas of Calculus: derivative and integral.	In class activities, Homework	Exams, Projects
Students will compute derivatives and integrals given a table, graph, or equation.	In class activities, Homework	Exams, Projects
Students will use derivatives and integrals to solve real world problems and interpret the results .	In class activities, Homework	Exams, Projects
Students will explain how exponential and logarithmic functions are used in growth and decay models.	In class activities, Homework	Exams
Students will explain how differential equations can be used to describe population dynamics.	In class activities, Homework	Exams
Students will engage actively with the subject matter through various forms of writing, low, medium, and high stakes.	In class activities, Homework, Exams	Projects, Final Exam
Students will enhance their writing skills and strategies.	In class activities, Homework, Exams	Projects, Final Exam

## Required Texts

Stewart and Day. 2015. *Biocalculus: Calculus for the Life Sciences*. Cengage Learning.

The topics covered in this class correspond to Chapters 1, 2, 3, 4, 5, 6, and 7. Trigonometry will not be covered in this class.

## Homework

Homework will be assigned daily from our textbook. Class will begin each day with randomly selected students presenting answers from their work on the board and with answers to your questions on the homework.

You should be prepared to present solutions to the homework problems on the board every day. Regularly, but not always, homework will be collected, so please write your answers on a paper that you can turn in.

Homework will be graded as complete or not complete. Students who are unprepared to present or who do not turn in a complete assignment when asked to will receive a 0 for that assignment. Homework will not be graded on correctness, including problems presented on the board.

## Projects

Five projects will be done throughout the semester. We will start each project during class and students will complete the project outside of class. Late projects will only be accepted with an Excused Absence. The start and due dates of each project are as follows.

Start Wednesday	Due Wednesday
September 9	September 16
September 30	October 7
October 21	October 28
November 11	November 18
December 2	At Final Exam

## Exams

Four in-class exams will be given during the semester. Exam questions will be similar to in-class and homework questions.

1. Friday, September 11
2. Friday, October 2
3. Friday, October 23
4. Friday, November 13

## **Late Assignments**

Late assignments will only be accepted with an Excused Absence – university-sponsored activity, student illness, immediate family emergency, short-term military obligation, jury duty or court appearance, religious holiday. Students must provide evidence to justify a University Excused Absence on the first day you return to class.

Late assignment must be turned in within 1 week after you return to class.

## **Final Exam**

There will be a comprehensive final exam in Smith Hall 509 on

- Friday, December 11, 10:15am - 12:15pm

Final exam questions will be similar to in-class, homework, and quiz questions.

## **Grading Policy**

Any student caught cheating will receive a 0 on the assignment and Academic Affairs will be notified.

Homework: 200 points

Exams: 50 points each (200 points total)

Projects: 50 points each (250 points total)

Final Exam: 200 points

Percentage ranges for final grades are as follows:

A = 90-100%    B = 80-89%    C = 70-79%    D = 60-69%    F = 0-59%

## **Attendance Policy**

Attendance will be taken every day. Students who arrive late will be considered absent and will not be given extra time on exams.

If you are absent with an Excused Absence, then please provide evidence to justify a University Excused Absence on the first day you return to class.

If you are absent for any reason, then it is your responsibility to make up any missed material.

## Calculators and Other Technology

You may use a calculator on all work and assignments in this class. A graphing calculator (e.g. TI-84) is not required. You may not use your phone, iPad, laptop, etc. as a calculator on any quiz or exam.

No other technology may be used in class without permission.

## Course Webpage

All important course information will be posted on our class MUOnline page.

## Tentative Course Schedule

Date	Material / Topic Covered
Week 1	Linear, exponential
Week 2	Inverse, composition, logarithm, logistic growth
Week 3	Project 1, Exam 1
Week 4	Secant and tangent lines, derivatives from graphs, differentiation rules
Week 5	Advanced rules, derivatives from tables
Week 6	Project 2, Exam 2
Week 7	Increasing, decreasing, concave up, concave down
Week 8	Tangent lines, linear approximations, word problems
Week 9	Project 3, Exam 3
Week 10	Antiderivatives, indefinite integrals, definite integrals
Week 11	Integration from graphs, integration from tables, word problems
Week 12	Project 4, Exam 4
Week 13	Differential equations
Week 14	Differential equations, Project 5
Finals Week	Friday, December 11, 10:15am - 12:15pm

## University Schedule

The complete university schedule can be found at

[www.marshall.edu/calendar/academic/fall2015.asp](http://www.marshall.edu/calendar/academic/fall2015.asp)