Marshall University
Math 140H: Applied Calculus Honors

Course Title/Number	MTH 140H CRN: 3035
Semester/Year	Fall 2016
Days/Time	MWF 12-12:50 PM
Location	SH 509
Instructor	Dr. Elizabeth Niese
Office	Smith Hall 721
Phone	(304)696-3609
Email	niese@marshall.edu
Office Hours	**Mondays & Wednesdays 9:00 AM - 10:00 AM, Wednesdays 3:00 - 4:00 PM, Fridays 9:00 AM - 11:00AM** If you can't make my scheduled office hours, please make an appointment for another time. To make an appointment, please email 24 hours in advance when possible.
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy be going to http://www.marshall.edu/academic-affairs and clicking on "Marshall University Policies. Or, you can access the policies directly by going to http://www.marshall.edu/academic-affairs/?page_id=802 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/ Sexual Harassment

Course Description: A brief survey of calculus including both differentiation and integration with applications. This honors course will also introduce topics from differential equations with applications. PR: ACT Math 25 or MTH127 or MTH130. 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.

Required Texts: *Biocalculus* by Stewart and Day.

Technology
Cell phones may not be used in class for texting or other social media. We will occasionally use computers during class time for lab projects. Computers will be provided, or you may bring your own laptop if you prefer.

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	Homework, In-class work	Quizzes, Projects, Final Exam
Students will compute and interpret derivatives and integrals using tables, graphs, and equations.	Homework, In-class work	Quizzes, Projects, Final Exam
Students will use derivatives and integrals to solve application problems and interpret the results.	Homework, In-class work	Quizzes, Projects, Final Exam
Students will explain how exponential and logarithmic functions are used in growth and decay models.	Homework, In-class work	Quizzes, Projects, Final Exam
Students will explain how differential equations can be used to describe population dynamics.	Homework, In-class work	Quizzes, Projects, Final Exam

Course Requirements:

WebWork: You will have daily online homework assignments consisting of 5-10 questions for practice and reinforcement. For each question you get 5 attempts, with the highest grade recorded.

Homework: Weekly problem sets with more sophisticated questions will be assigned. These questions will require a combination of computation and interpretation/explanation. Each question will be graded on a 3 point scale:

3 Points: Mostly correct - minor errors/typos may be present

2 Points: Partially correct - major error present

1 Point: Mostly incorrect - good faith, but incorrect, attempt was made.

A grade of 2 or 1 on a problem indicates that you should attend office hours (or make an appointment) with me to address the material you need additional help with.

Projects: There will be five lab-style projects covering applied topics relevant to those studying biological sciences. *Tentative* deadlines for the projects are: September 14, October 5, October 26, November 16, December 9.

Quizzes: There will be 4 quizzes. Quizzes are *tentatively* scheduled for September 9, September 30, October 21, and November 11.

Final Exam: The final exam will be cumulative. As stated on the university exam schedule, it will take place on **December 16, 10:15 am − 12:15 pm** in our regularly scheduled classroom.

Grading Policy:
Your final course grade will be calculated as follows:

Webwork:	10 %	> 90%	**A**
Homework:	10 %	80% − 89%	**B**
Projects:	30%	70% − 79%	**C**
Quizzes:	30%	60% − 69%	**D**
Final Exam:	20%	< 60%	**F**

Attendance Policy:
Attendance at all scheduled class times is expected. Make-up quizzes/tests will only be given in the event of an excused absence. If you know in advance that you will be absent, please make arrangements to take the test early if possible. If you are ill and cannot make it to class, it is courteous to send me an email notifying me. You are responsible for all material missed and should try to get a copy of a classmate's notes.

Tentative Course Schedule:

Week	Topics covered
1	Basic functions, linear, exponential
2	Composition, inverse functions, logarithmic & logistic functions
3	Start project 1, Quiz 1
4	Average & Limits, Instantaneous rate of change, basic rules
5	Product, quotient, chain rules
6	Start project 2, Quiz 2
7	Increasing/decreasing functions, concavity
8	Tangent line approximations, applications of derivatives
9	Basic integration, start project 3, Quiz 3
10	Integration, definite integrals, graphs & tables
11	Integrals with graphs & tables, applications of integration
12	Start project 4, Quiz 4
13	Differential Equations
14	Differential Equations & disease modeling, start project 5
15	Applications of differential equations, review
FINAL EXAM: December 16, 10:15 am - 12:15 pm	