

**SYLLABUS  
MATH 162-07  
Spring 2019**

BLAKE FARMAN  
*Lafayette College*

CONTACT INFORMATION

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**Office:** Pardee Hall room 225A

**Phone:** (610) 330-5906

**Office Hours:** Monday/Wednesday, 12:30 pm - 2:00 pm.

Additionally, I am available by appointment if these times are not suitable.

COURSE INFORMATION

**Lectures:** Monday/Wednesday/Friday, 11:00 am - 12:15 pm in Pardee Hall, room 217.

**Pre-Requisites:** A grade of C- or better in Mathematics 161 or 165.

**Course Objectives:** A continuation of Mathematics 161. Topics include techniques and applications of integration, introduction to differential equations, parametric curves and polar coordinates, infinite series and Taylor approximation.

**Learnings Outcomes:** The ideas to be discussed and skills to be acquired in this course include

- the differential and integral calculus of inverse trigonometric functions
- an exposure to L'Hôpital's Rule,
- applications of integration including, but not necessarily limited to, areas between curves and elementary volumes of revolution,
- integration techniques including, but not necessarily limited to, parts and partial fractions,
- numerical integration techniques (midpoint, trapezoid, and Simpson's rule)
- an introduction to differential equations, including but not necessarily limited to, direction fields, solutions of separable differential equations, and growth & decay problems,

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*Date:* January 28, 2019.

- the ability to work with sequences,
- an exposure to series, including some tests for convergence,
- an exposure to power series including intervals of convergence, but not necessarily the testing of endpoints,
- the ability to compute Taylor and Maclaurin series,
- an understanding of approximate (versus exact) answers and the use of error bounds,
- the basic calculus of parametric curves and functions defined via polar coordinates.

**Course Website:** The URL for the course website is

<https://sites.lafayette.edu/farmanb/teaching/math-162-07/>

Here you can find a digital copy of the syllabus and other important information.

**Text:** The required text for this course is

*Calculus*, 8<sup>th</sup> Edition, James Stewart, 2016. ISBN 978-1-285-74062-1.

However you choose to obtain a copy, be aware that it is **expected** that you will read the text outside of lecture. In particular, it is highly suggested that you take some time to read the section to be covered ahead of lecture. In making your choice, be sure that you choose an option that you will read.

## ASSESSMENTS

**Homework.** Homework will be assigned and collected regularly. The problems are chosen to highlight the core concepts from each section. Mastery of these homework sets serves as a good indicator for exam performance. As such, you should ensure that you fully understand the material on these homework sets; that is, upon completion of the homework set, you should be capable of completing similar problems without the aid of the text, a computer, a calculator, or any other tools not available during an exam.

Late work will **not** be accepted, and you are solely responsible for ensuring that these assignments are completed on time. Do **not** leave these assignments until the last minute.

**Quizzes:** There will be regular quizzes given during class. Problems appearing on the quizzes will be selected from the homework problems, and will be graded as though they were on an exam. As such, these quizzes should be considered as practice for the in-class examinations.

**Exams:** There will be three in-class exams and a cumulative final exam. The in-class exams are tentatively scheduled as follows:

- Exam 1: Monday, February 25, 2019,
- Exam 2: Wednesday, March 27, 2018, and
- Exam 3: Wednesday, May 1, 2018.

Though unexpected, any deviations from this schedule will be announced during lecture and reflected on the course website.

**Missed Assessments:** There will **not** be any make-up exams or quizzes. If you miss one exam, your final exam grade will replace the missing exam grade. **This policy is intended only for exams missed due to illness, injury, etc. It does NOT mean that your lowest exam grade will be dropped.** Any further missed exams will receive a grade of zero.

### GRADING

**Scale:** Grades will be assigned on the following scale:

A-: 90-92%	A: 93-100%	
B-: 80-82%	B: 83-86%	B+: 87-89%
C-: 70-72%	C: 73-76%	C+: 77-79%
D-: 60-62%	D: 63-66%	D+: 67-69%
F: < 60%		

**Weights:** Final grades will be calculated with the following weights:

Homework: 10%,
Quizzes: 15%,
Exams: 45%,
Final Exam: 30%.

### ACADEMIC SUPPORT

**Calculus Cavalry.** Open peer tutoring is available in Pardee Hall room 218 with the following hours:

Sundays: 4-6 pm.
Mondays: 7-9 pm,
Tuesdays: 4-6 pm,
Wednesdays: 7-9 pm, and
Thursdays: 4-6 pm and 7-9 pm

**Academic Resource Hub.** The Academic Resource Hub (formerly ATTIC) provides academic services to enhance student success and is located on the third floor of Scott Hall.

Resources available to students include:

- Tutoring and Supplemental Instruction
- Academic Enrichment Resources
- Accessibility Services
- Services for Varsity Student Athletes

For more information, see the website at <http://hub.lafayette.edu>.

**Disability statement:** In compliance with Lafayette College policy and equal access laws, I am available to discuss appropriate academic accommodations that you may require as a student with a disability. Requests for academic accommodations need to be made during the first two weeks of the semester, except for unusual circumstances, so arrangements can

be made. Students must register with the Office of the Dean of Advising and Co-Curricular Programs for disability verification and for determination of reasonable academic accommodations.

### EXPECTATIONS

**Academic Integrity:** To maintain the scholarly standards of the College and, equally important, the personal ethical standards of our students, it is essential that written assignments be a student's own work, just as is expected in examinations and class participation. A student who commits academic dishonesty is subject to a range of penalties, including suspension or expulsion. Finally, the underlying principle is one of intellectual honesty. If a person is to have self-respect and the respect of others, all work must be his/her own.

Any student found responsible of academic dishonesty **will receive a grade of F in the course** and disciplinary action according to the procedure outlined in Student Handbook.

**Attendance:** Lecture is the longest stretch of time each week in which you have access to an interactive learning resource (i.e. me). As such, lecture is arguably the most valuable aspect of the course and you are expected to not only attend class, but to also actively engage with the material (e.g. ask questions, contribute answers, etc.). Cell phones and other distractions should either be left at home or be silenced and remain stored your bag. If you find yourself unable to attend the lecture, please contact me in advance, if possible, to see what you will miss.

### FEDERAL CREDIT HOUR REQUIREMENT

The student work in this course is in full compliance with the federal definition of a four credit hour course. Please see the Registrar's Office web site

<http://registrar.lafayette.edu/additional-resources/cep-course-proposal>  
for the full policy and practice statement.

### SCHEDULE

Below is a tentative schedule for the course.

Date	Section(s)	Material
1/28	6.6	Inverse trigonometric functions
1/30	6.6, 6.8	Indeterminate forms and L'Hôpital's Rule
2/1	6.8	
2/4	5.1, 5.2	Areas and Volumes
2/6	5.1, 5.2	
2/8	7.1	Integration by Parts
2/11	7.4	Partial fractions
2/13	7.5	Strategy for Integrations
2/15	7.7	Approximate integration

2/18	7.7	Using error bounds
2/20	7.8	Improper integrals
2/22		Review for Exam 1
2/25		Exam 1
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2/27	9.1	Introduction to differential equations
3/1	9.2	Direction fields and Euler's method
3/4	9.3	Separable differential equations
3/6	6.5	Exponential growth and decay
3/8	10.1	Parametric equations
3/11	10.2	Tangents and arclength
3/13	10.3	Polar coordinates
3/15	10.4	Areas in polar coordinates
3/18 - 3/22		Spring Break
3/25		Review for Exam 2
3/27		Exam 2
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3/29	11.1	Sequences
4/1	11.2	Series
4/3	11.3	The integral test
4/5	11.4	The comparison test
4/8	11.5	Alternating series
4/10	11.6	Ratio and root tests
4/12	11.7	Strategy for testing series
4/15	11.8	Power series
4/17	11.9	Representing functions
4/19	11.10	Taylor and Maclaurin series
4/22	11.10	
4/24	11.11	Applications of Taylor polynomials
4/27	11.11	
4/29		Review for Exam 3
5/1		Exam 3
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5/3		TBA
5/6		TBA
5/8		Final Exam Review
5/10		Final Exam Review