

# Welcome to MA 114 in Spring 2019

Calculus II at the University of Kentucky

## Course Description

A second course in Calculus. Applications of the integral, techniques of integration, convergence of sequence and series, Taylor series, polar coordinates. Lecture, three hours; recitation, two hours per week. Prereq: A grade of C or better in MA 113, MA 137 or MA 132.

MA 114 consists of lectures and recitations. Each large lecture is divided into multiple sections for recitations. When combined, this course website and the website for lecture section 0XY comprises the syllabus for MA 114 0XY.

## Learning Outcomes

**Students will investigate the following "big questions" and their associated learning outcomes.**

1. Compute integrals analytically using integration by parts, trig substitution and partial fractions
2. Approximate definite integrals numerically and understand the limitations of numerical methods
3. Determine the convergence or divergence of an improper integral, infinite sequence, or infinite series
4. Find series for the elementary functions and estimate numerical values of series
5. Recognize when a physical or geometric quantity can be computed using integral calculus
6. Use integrals to compute arc length, surface area, and volume
7. Describe plane curves using parametric and polar coordinates
8. Analyze mathematical models involving first-order differential equations

**Students will improve with regard to the following mathematical practices.**

1. Students will make sense of problems and be persistent while solving them.
2. Students will engage in productive struggle with mathematics problems.
3. Students will productively collaborate with others.
4. Students will communicate through mathematical writing.

**Course policy regarding supportive discourse.** Students should not make negative comments about themselves or their mathematical ability, at any time, for any reason. Here are example statements that are discouraged, along with acceptable replacement phrases.

- I can't do this -> I am still learning how to do this
- That was stupid -> That was a productive mistake
- This is impossible -> There is something interesting and subtle in this problem
- I'm an idiot -> This is going to take careful thought
- I'll never understand this -> This might take me a long time and a lot of work to figure out
- This is terrible -> I think I've done something incorrectly, let me check it again

The replacements reflect the reality that with a little effort we are capable of understanding and making use of difficult concepts from mathematics.

## Course Calendar

The [course calendar is available as a pdf](#). This document includes all assignments and their due dates. This is the most important part of the syllabus.

## Instructors

Course meeting times and locations are available from [myuk.uky.edu](http://myuk.uky.edu).

Instructor, Sections 001-003: Lawrence Harris

- Sections 001, 002: Nandita Sahajpal
- Section 003: John Rufus Hall III

Instructor, Sections 005-008: Serge Ochanine

- Sections 005, 006: Kaelin Cook-Powel
- Section 007: Carissa Slone
- Section 008: Joseph Cummings

Instructor, Sections 009-012: Max Kutler

- Sections 009, 010: Kaitlin Bruegge
- Section 011: Jinping Zhuge
- Section 012: Hunter Lehman

Instructor, Sections 013-016: erica Whitaker

- Section 013: Jinping Zhuge
- Sections 014, 015: Sarah Hadaidi
- Section 016: Kalila Sawyer

## Textbook

Calculus: Early Transcendentals, 8th edition, by James Stewart, ISBN 9781337056403 (Chapters 1-11) or ISBN 9781337030595 (Chapters 1-16). For MA 113 and 114, you only need to obtain one of either the Chapter 1-11 text or the Chapter 1-16 text. The bookstore has custom paperback editions of the textbook for UK.

- If you plan on only taking Calculus I and II (MA 113-114), then you need chapters 1-11.
- If you plan on taking Calculus I, II, and III (MA 113-114-213), then you need chapters 1-16.

The UK custom paperback editions are identical to the regular editions, except the covers. If you have a copy of Stewart, you do not need to purchase the UK edition. You **do not need to purchase** a separate WebAssign access code for this course. We will use the WeBWork online homework system.

You purchased access to the eBook when you purchased your textbook from the UK Bookstore. Instructions for accessing the eBook are available in the [Student Quick Start guide](#). To access Webassign, you will need our class access key: **uky 6055 5586**

WebAssign gives you free access to the eBook for two weeks after the start of class. To continue to use the eBook after that, you will need to enter the access code that came with the textbook you bought or purchase access online.

## Recitations & MA 194

In addition to the 4 hours of credit for MA 114, the department offers one additional hour of credit as MA 194 on a pass/fail basis. You will pass MA 194 if you satisfy the following criteria:

- you have no more than 2 unexcused absences during MA 114 recitations
- you receive a grade of D or better in MA 114

If you receive an grade of E in MA 114, or if you have 3 or more unexcused absences in recitation, you will fail MA 194.

Your section number for MA 194 must be the same as your section number for MA 114. If you drop or change sections of MA 114, please make sure to also drop or change sections of MA 194. It is your responsibility to do this if you change sections. If you do not change the section of MA 194 you may receive a failing grade for MA 194 because you are not on the proper class roll.

In recitation, you will practice the material of the lectures using worksheets. Most of your recitation time will be spent working in groups. For the schedule of the worksheets see the [course calendar](#).

The worksheets are available at the following [link](#).

## Calculators

You may use calculators on the homework and exams. You may not use a calculator that has symbolic manipulation capabilities of any sort on any exam. This precludes the use of TI-89, TI-Nspire CAS, HP 48, TI 92, Voyage 200, Casio Classpad or laptop computer. Also, you may not use your mobile phone, iPhone or Blackberry on any exam even if you forget your regular calculator. If it runs Android, CP-67, GEOS, iOS, Linux, MacOS, PalmOS, Ubuntu, Unix, Windows, or similar operating systems, you cannot use it on the exams. Answers that are simply the output of a calculator routine or a single numerical or symbolic expression that has no supporting work will receive little or no credit on exams and assignments.

## Policies

**Attendance.** Attend lectures and recitations regularly. Be on time and remain until dismissed. Do not leave in the middle of class. Instructors may deduct attendance points for coming late or leaving early. If you cannot come to lecture or recitation and would like to request an excused absence, inform the instructor as early as possible and provide documentation.

**Excused absences.** Students need to notify the instructor of absences prior to class when possible. Senate Rules 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, (e) certain interviews for full-time jobs after graduation and (f) other circumstances found to fit "reasonable cause for nonattendance" by the professor. Students anticipating an absence for a major religious

holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Two weeks prior to the absence is reasonable, but should not be given any later. Information regarding major religious holidays may be obtained through the [Ombud](#) (859-257-3737).

Per Senate Rule 5.2.4.2, students missing any graded work due to an excused absence are responsible: for informing the Instructor of Record about their excused absence within one week following the period of the excused absence (except where prior notification is required); and for making up the missed work. The professor must give the student an opportunity to make up the work and/or the exams missed due to an excused absence, and shall do so, if feasible, during the semester in which the absence occurred.

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request “appropriate verification” when students claim an excused absence because of illness, or death in the family. Appropriate notification of absences due to University-related trips is required prior to the absence when feasible and in no case more than one week after the absence.

Note that classes meet as indicated in the course calendar, including on the day following exams.

**Use of electronic devices.** Electronic devices such as mobile phones, laptops and tablets can be a source of distraction that prevents students from participating in class. They should only be used as part of class activities during lectures and recitations at the direction of instructors. Instructors may prohibit their use during class. Students who are not participating in class may be marked absent. Mobile phones, laptops, and computers may not be used during exams.

**Students with disabilities.** If you have a documented disability that requires academic accommodations, please see your instructor as soon as possible. In order to receive accommodations in this course, you must provide your instructor with a Letter of Accommodation from [the Disability Resource Center](#). The Disability Resource Center coordinates campus disability services available to students with disabilities. It is located on the corner of Rose Street and Huguelet Drive in the Multidisciplinary Science Building, Suite 407. You can reach them via phone at (859) 257-2754 and via email at [drc@uky.edu](mailto:drc@uky.edu) and at the [DRC website](#).

**Assignment deadlines and alternate exam policy.** In order to be fair to all students, dates for exams and homework assignments are as listed on the course calendar. Missed work and exams may be made up only due to illness with medical documentation or for other unusual (documented) circumstances. If you have a university excused absence or a university-scheduled class conflict with uniform examinations please contact your lecturer as soon as possible, *but at least two weeks before the exam*, so that an alternate exam can be arranged for you.

**University Policy on Academic Integrity.** Per University policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the University may be imposed. Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the [Ombud website](#). A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Senate Rules 6.3.1 (see [Senate Rules](#) for the current set of Senate Rules) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obliged to consult their instructors on the matter before submission. When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording, or content from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism.

Plagiarism includes reproducing someone else's work (including, but not limited to a published article, a book, a website, computer code, or a paper from a friend) without clear attribution. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work, which a student submits as his/her own, whoever that other person may be. Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources or information, the student must carefully acknowledge exactly what, where and how he/she has employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate

indication of its origin. Making simple changes while leaving the organization, content, and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas, which are so generally and freely circulated as to be a part of the public domain.

**Policy regarding collaboration.** Mathematics is an inherently collaborative and social activity. Students are encouraged to work together to understand a problem and to develop a solution. However, the solution you submit for credit must be your own work. In particular, you should prepare your solutions to the written assignments independently and you should submit your answers for web homework independently. Copying on exams and usage of books, notes, or communication devices during examinations is not allowed. Cheating or plagiarism is a serious offense and will not be tolerated. Students are responsible for knowing the [University policy on academic dishonesty](#).

While you should discuss your web homework problems with other students, you should not have another person submit answers on your behalf.

**Mid-term Grades.** Mid-term grades will be posted in myUK by the deadline established in the [Academic Calendar](#).

**Questions about grading** Please ask your instructors if you have questions about the grading of an assignment. All requests for corrections to grading should be addressed to your instructor. Requests should be made shortly after you receive the paper back and must be made within one day of the paper being returned.

**Non-Discrimination Statement and Title IX Information** The University of Kentucky faculty are committed to supporting students and upholding the University's non-discrimination policy. Discrimination is prohibited at UK. If you experience an incident of discrimination we encourage you to report it to Institutional Equity & Equal Opportunity (IEEO) Office, 13 Main Building, (859) 257-8927. Acts of Sex- and Gender-Based Discrimination or Interpersonal Violence: If you experience an incident of sex- or gender-based discrimination or interpersonal violence, we encourage you to report it. While you may talk to a faculty member or TA/RA/GA, understand that as a "Responsible Employee" of the University these individuals MUST report any acts of violence (including verbal bullying and sexual harassment) to the University's Title IX Coordinator in the IEEO Office. If you would like to speak with someone who may be able to afford you confidentiality, the Violence Intervention and Prevention (VIP) program (Frazee Hall – Lower Level; <http://www.uky.edu/StudentAffairs/VIPCenter/>), the Counseling Center (106 Frazee Hall, <http://www.uky.edu/StudentAffairs/Counseling/>),

and the University Health Services (<http://ukhealthcare.uky.edu/uhs/student-health/>) are confidential resources on campus.

## Expectations for Student Work

For any written solutions to problems in this course, students are expected to submit work that is clear, legible, and well-written. Students should show all their work in an organized manner, using complete sentences to explain their solutions and justify their computations. To illustrate our expectations for written work, we have included here three sample solutions to a problem: one of these is a correct solution that meets our expectations; one of these is a solution having the correct answer yet it is not sufficiently well-written to receive full credit; and one of these is a solution that is ungradeable and will receive zero credit, even though it appears that the correct answer might have been found.

- [Example problem and homework template](#)
- [Correct solution receiving full credit](#)
- [Correct numerical answer, but solution is not well-written and thus receives partial credit](#)
- [Ungradeable, even though a correct numerical answer is written on the page](#)

## Study Advice and Getting Help

Mathematics is not a spectator sport. To understand what this means, consider how well you might learn to play football by merely watching Luka Modrić, or learn to sing by only listening to Aretha Franklin. Similarly, you will not learn the material in this course by only listening to the lectures and thinking to yourself - "Yes, I understand that". In order to learn, you must also actively read the textbook, work a large number of problems, talk to your classmates, and reflect on your work. The instructor's role is that of a coach or guide who will help you learn as much of the material as you desire. This being said, form good study skills from the start!

- Come to class and take notes during lecture.
- Read each section of the text prior to the lecture where it will be covered.
- As you read the text, have pencil and paper handy. Work through the computations. Find examples to illustrate the theorems and results in the text. If the text tells you that every differentiable function is continuous, think of examples of differentiable functions and check if they are continuous. Think of examples of functions that are not continuous and determine if they are differentiable. Can you think of an example of a function that is continuous but not differentiable?



- Begin the homework immediately after material is covered in class. Mathematics is cumulative. In order to benefit from Wednesday's lecture, you must understand the material covered on Monday.
- Find classmates and form a study group. Spend time discussing problems.
- Do not fall behind. It is very difficult to catch up in a math class after falling behind.
- Begin preparing for exams well in advance. Read the text again to review all of the material to be covered on the exam. Be sure you are familiar with the main results and theorems and how they are used in homework.
- Work additional problems to prepare for the exam. Use [old exams](#) from previous semesters of MA 114 to take a practice test. Treat it like a test. Compare your solutions with those provided by the answer key.
- If you are having trouble, then seek help immediately.

If you are having trouble with a homework problem, you can send an e-mail from WeBWork to your teaching assistant and lecturer. Try to provide as much information as possible in your help request. Describe what you have attempted and give a guess as to what might be wrong. It is helpful if these messages are sent from WeBWork rather than from Canvas or a direct email as WeBWork includes information about your individual version of the question and the answers you submitted.

In addition to the online help, you should take one or more of the following steps.

- Talk to your instructors before or after class or send them an email. Let them know what problems you are having, if any. They will be happy to help!
- Go to the office hours of your instructors.
- You can also seek help in the [Mathskeller](#) that is located in room CB 063 in the basement of the classroom building. Many instructors and teaching assistants from the Department of Mathematics will hold office hours in the Mathskeller. In addition, limited drop-in tutoring is available. You can seek help from any of the instructors or teaching assistants --- not just your own. The Mathskeller is open from 9 am to 5 pm Monday through Friday (except academic holidays) during the semester.
- Furthermore, you can seek help in [The Study](#), which provides drop-in peer tutoring by undergraduate students who have successfully navigated the courses for which they tutor. A regular schedule of all tutoring is available on [The Study's web site](#)

## Grading

You may access your course grades through the [Canvas](#) system, logging in with your linkblue ID and password. Your grade in the course will be determined as follows:

<b>Activity</b>	<b>Number of points</b>
3 Midterm Exams	300 points
Final Exam	100 points
Web Homework (WebWork)	110 points
Quizzes	40 points
Lecture Attendance	30 points
Recitation Attendance	20 points
<b>Total</b>	<b>600 points</b>

Your grade will be determined as follows.

<b>Total Points</b>	<b>Final Grade</b>
At least 540	A
At least 480	B
At least 420	C
At least 360	D
Less than 360	E

We may adjust (or curve) the grade lines down (but not up!). Decisions about changing the grade lines will be made by the faculty after considering the difficulty of the exams and the performance of students on the exams. Typical means for exams in previous years have been in the 70's. In computing these means, we do not include scores of students who score 30 or below.

## Exams

There will be three uniform midterm exams and one final exam. Each midterm exam is 120 minutes (2 hours) and the final exam is 120 minutes (2 hours). You must bring your student identification card with you to the exams!

If you must miss an exam due to a conflict as defined in the University Senate Rules, you may request an alternate exam. You will need to submit your request to your lecture instructor at least two weeks in advance of the scheduled date of the exam using the [MA 114 Alternate Exam Request Form](#). Information regarding alternate exam times will be emailed directly to the students requesting an alternate exam.

<b>Exam</b>	<b>Date</b>	<b>Time</b>
I	Tuesday, February 5, 2019	5:00 - 7:00 pm
II	Tuesday, March 5, 2019	5:00 - 7:00 pm
III	Tuesday, April 9, 2019	5:00 - 7:00 pm
Final Exam	Wednesday, May 1, 2019	6:00 - 8:00 pm

Exams I, II, III are scheduled in the following rooms:

<b>Sections</b>	<b>Room</b>	<b>Building</b>
001-003	CB 110	<a href="#">White Hall Classroom Building</a>
005-008	JSB 121	<a href="#">Jacobs Science Building</a>
009-016	Memorial Hall Auditorium	<a href="#">Memorial Hall</a>

Final Exam is scheduled in:

<b>Sections</b>	<b>Room</b>	<b>Building</b>
001-003	BS 116	<a href="#">Thomas Hunt Morgan Biological Sciences Building</a>
005-008	JSB 121	<a href="#">Jacobs Science Building</a>
009-016	Memorial Hall Auditorium	<a href="#">Memorial Hall</a>

A [library of old exams](#) is available to help students review for exams. Please note that the material covered on each exam may change from semester to semester.

## Online Homework (WeBWorK)

Homework is completed using WeBWork, an open-source online homework system supported by the Mathematical Association of America (MAA). To access WeBWork go to the Modules tab in your Canvas page and select the link for WeBWork.

See the document titled [Introduction to WeBWork](#) for information about accessing your homework sets. The document [Entering Answers in WeBWork](#) gives more information about how to enter mathematics to answer questions in WeBWork. Please contact your lecturer or teaching assistant if you have difficulty logging in or need to change sections.

The due date for each of these homework assignments is given on the corresponding web page as well as in the [course calendar](#). Occasionally, we may delay homework due dates. The due date at the WeBWork server will be the most up-to-date information.

Late web homework will not be accepted. Shortly after the homework is due, solutions to many of the web homework problems will be made available through the WeBWork server. We cannot allow some students to continue working on the problems after the solutions are available or delay providing solutions to students who have completed the homework on time. If you have an unusual situation that prevents you from completing web homework, please contact your instructor. However, in general students will be expected to complete web homework even if they are traveling.

Suggestions for working web homework:

- Print out the web homework and write out complete solutions of problems before attempting to submit answers. These solutions will be helpful in studying for exams and to bring to discussions with others.
- Form a study group and meet regularly to discuss web homework and the material covered in lectures.
- Make sure you understand your solution to each homework problem. Discuss your approach with members of your study group, your instructor, or peer tutors at the Mathskeller or the Study.
- Do not guess. If you submit an answer and are marked wrong, look through your solution for computational and conceptual errors.
- Near the bottom of many pages at WeBWork, you will find a link to email your instructor. Please work to formulate clear questions in your email. We will work to answer emailed questions by the next work day. Instructors will not be able to answer questions sent the evening of a due date.

## Quizzes

Quizzes will be given on the dates specified in the [course calendar](#). Calculators will *not* be allowed for quizzes. The quiz grades contribute to your overall course grade as described in the grading section of this website. There will be ten quizzes given and we will drop the two lowest grades.

- Quiz 01 [questions](#) | [answers](#)
- Quiz 02 [questions](#) | [answers](#)
- Quiz 03 [questions](#) | [answers](#)
- Quiz 04 [questions](#) | [answers](#)
- Quiz 05 [questions](#) | [answers](#)
- Quiz 06 [questions](#) | [answers](#)
- Quiz 07 [questions](#) | [answers](#)
- Quiz 08 [questions](#) | [answers](#)
- Quiz 09 [questions](#) | [answers](#)
- Quiz 10 [questions](#) | [answers](#)

## Worksheets

The worksheets are available as a pdf: [Worksheets for Unit A, Worksheets for Unit B, Worksheets for Units C and D.](#)

Beginning with worksheet 2, you will be responsible for having the recitation worksheets with you for recitation classes. If you fail to do so, then it may be counted as an unexcused absence. You may print the worksheet and bring it to recitation class or your TA might provide other options.