Instructor: N. Christopher Phillips
Office: 105 Deady.
Office hours: M 2:00–2:50 pm, Tu 3:00–3:50 pm, F 9–9:50 am, or by appointment. Please knock. I can’t leave my door open, because if I do I get too many people asking to borrow my telephone or pencil sharpener, or where to find the math department office or nonexistent rooms (such as 350 Deady).

Home page: https://pages.uoregon.edu/ncp/
Course web page: https://pages.uoregon.edu/ncp/Courses/Math242_W20_Web/Math242_W20_Web.html

Email: See the course web page. (It isn’t here because spammers harvest email addresses out of pdf files posted on the internet.) As stated there: I don’t read html email. (If you are using the UO’s new Exchange program, the default seems to be to send html only email, and you will have to change that.) Also, no Microsoft Word documents.

Phone: 541-346-4714.

Discussion section leader: Jay Hathaway.
Office: 324 Fenton.
Office hours: W 2:00–4:00 pm, Th 10:00–11:00 am.
Home page: https://pages.uoregon.edu/jayh/
Email: See the his home page. (It isn’t here because spammers harvest email addresses out of pdf files posted on the internet.)

Class Meetings: MW 8:30 am–9:50 am, 110 Fenton.

Discussion Section Meetings:
- W 4:00–4:50 pm, 253 Straub (CRN 23659).
- W 5:00–5:50 pm, 303 Gerlinger (CRN 23660).
- Th 9:00–9:50 am, 106 Deady (CRN 23662).
- Th 10:00–10:50 am, 102 Deady (CRN 23661).

Course Goals: By the end of the course, successful students will understand:
- Multivariable function evaluation, differentiation, and optimization.
- Basic strategies for antidifferentiation.
- Applications of definite and indefinite integration to probability, business, and economics.
- How to set up and solve basic differential equations.

Learning Outcomes: Specifically, by the end of the course a successful student will be able to:
- Find antiderivatives of polynomial, exponential, and logarithmic expressions.
- Use substitution to evaluate an indefinite integral.
- Identify a Riemann sum as an approximation to a definite integral.
- Relate a definite integral to the area between a curve and the horizontal axis.
- Use definite integration to evaluate quantities relevant in applications to business and economics, including producer and consumer surplus, continuous income streams, and average value.
- Evaluate and interpret improper integrals in context.
- Determine whether a function defines a probability density function.
- Compute probabilities and the expected value associated with a continuous random variable.
- Evaluate and find the domain of a function of two variables.
- Compute partial derivatives of a function of two variables.
- Find relative maximum and minimum values of a function of two variables.

Most importantly, the student will be able to model the mathematical topics described among the learning outcomes in words, then solve or simplify the relevant equations or expressions, and finally write a summary statement of the solution.
Course Materials:

- **Text:** “Calculus for Business, Economics, and the Social and Life Sciences (Brief)”, 11th edition, by Hoffmann, Bradley, Sobecki, and Price. (No homework problems will be assigned by number from this book. Therefore recent older editions can probably be used. You can probably even use a book on calculus for business etc. students by some other author if you can determine which are the appropriate sections in it.)
- **Instant Response (required):** iClicker 2 remote (purchasable at the bookstore). This will enable interactivity during lecture for course engagement credit. (See page 2 for details on this grade category.)
- **Calculator (recommended):** A scientific calculator will save you time doing simple computations. You will only be allowed to use one of the following calculators on quizzes and exams: Casio fx-260, Casio fx-300MS (or Plus), Casio fx-300ES (or Plus), TI-30X (a, S, or IIS), TI-34. No graphing calculators or calculators capable of calculus computations will be allowed. The Casio fx-300MS is available from the UO Bookstore for about $13 (price from 2019).

**Videos and Class Time:** Mike Price (a different instructor) made lesson videos to help introduce students to the course material. Please watch the corresponding videos before each class meeting. Class time will focus on reinforcing skills introduced in the videos and it will be easier to get extra credit on the course engagement questions if you come to class prepared. You can find links to individual videos on the YouTube channel “mikesmathchannel” on the course home page; the entire thing is at [https://www.youtube.com/channel/UCbjeLRIWP_dJB3i14QDDitg](https://www.youtube.com/channel/UCbjeLRIWP_dJB3i14QDDitg).

**Grade Categories and Distribution:** (This policy may be slightly modified at the end of the first week of classes.) We will use a fixed grading scheme for the course, but there may be a small upward shift in scores. This shift is not guaranteed, but if there is a shift, it will be determined after all graded work is scored and be based on class completion of extra credit opportunities.

<table>
<thead>
<tr>
<th>Category</th>
<th>Portion of Course Grade</th>
<th>Adjusted Course Score, $S$</th>
<th>Grade Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>iClickers</td>
<td>3%</td>
<td>$S \geq 89%$</td>
<td>A</td>
</tr>
<tr>
<td>Weekly Packets</td>
<td>8%</td>
<td>$78% \leq S &lt; 89%$</td>
<td>B</td>
</tr>
<tr>
<td>WeBWorK</td>
<td>14%</td>
<td>$67% \leq S &lt; 78%$</td>
<td>C</td>
</tr>
<tr>
<td>Quizzes</td>
<td>5%</td>
<td>$56% \leq S &lt; 67%$</td>
<td>D</td>
</tr>
<tr>
<td>Chapter 7 Exam</td>
<td>20%</td>
<td>$S &lt; 56%$</td>
<td>F</td>
</tr>
<tr>
<td>Chapter 5 Exam</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
<td></td>
<td></td>
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</tbody>
</table>

Notes on grading:

- Unless otherwise indicated, plus and minus grades will be awarded in the top and bottom 3% of a course score bracket, respectively. Thus, the C/C- cutoff will be at 70%. The grade A+ will be harder to get than this suggests, and there is no such thing as F+ or F-.
- If your quiz average for quizzes 1, 2, and 3 is better than your Chapter 7 Exam score, 20% of the exam score will be replaced by your quiz 1, 2, and 3 average. If your quiz average for quizzes 4 and 5 is better than your Chapter 5 Exam score, 20% of the exam score will be replaced by your quiz 4 and 5 average.
- A student who achieves adjusted grades of D+ or worse on all of the exams may be eligible for a maximum grade of D+. In addition, the course grade may be no more than one letter grade higher than the final exam grade.

**iClickers:** Every class meeting you will have opportunities to answer brief questions using iClickers. Each question is worth two points, which can be obtained regardless of the accuracy of your answer. An additional point is possible (for 150% total credit) for a correct response to the question.
Weekly Packets: (Details may change before the first discussion section meeting.) Every week in discussion you will begin a written homework packet, focused on processing recent material discussed in primary class time, and worth course credit comprised of both participation and accuracy. Engaging earnestly with your group in the discussion of the material, regardless of completion, is generally sufficient for full participation credit (your discussion leader is the arbiter of what constitutes full, partial, or no participation). The packet can be completed during discussion, or turned in at the beginning of the next week’s discussion to be graded for accuracy. You will be allowed one “free” packet attendance credit in the event of an emergency situation (subject to your discussion leader’s approval). Otherwise, no make-up participation credit will be given.

Quizzes: Most weeks, short quizzes will be given in discussion sections. These quizzes are brief (typically 10 minutes long). Quizzes are given so that you and your instructor can gauge your grasp of recent material and, perhaps even more importantly, to showcase an example of a question very similar to one appearing on the next exam. In addition to their normal percentage of the course grade, quizzes can also be a boost to your midterm exam scores: 20% of each exam grade will be comprised of the average of the quiz grades leading up to that exam (unless your exam grade is better, of course). Make-up quizzes will only be given under extreme circumstances, as determined by your discussion leader.

WeBWorK: Homework will be collected through WeBWorK three times per week: Tuesday (the “a” weekly assignment), Thursday (the “b” assignment), and Sunday evenings (the “c” assignment). All three assignments will be available by the beginning of the week. Keep in mind that your discussion leader and I may not be checking email over the weekend, so it would be most responsible to finish your assignments by Friday each week.

WeBWorK is at [https://webwork.uoregon.edu/webwork2/Math242Winter-Hathaway/](https://webwork.uoregon.edu/webwork2/Math242Winter-Hathaway/), and there is a link on the course home page.

Exams: The two midterm exams will cover at most one chapter of material and will be administered during your discussion section on the week listed. The final exam will be comprehensive, and will be administered in our regular classroom during finals week.

1) Chapter 7 Exam: Discussion Section, Week 4 (29 or 30 January).
2) Chapter 5 Exam: Discussion Section, Week 7 (19 or 20 February).
3) Comprehensive Final Exam: 110 Fenton, 10:15 am on Thursday of Week 11 (19 March).

Extra Credit: I provide regular opportunities for extra credit during the term. Opportunities are provided in a manner that any students who exhibit good effort can achieve them. Sources of extra credit include, but are not necessarily limited to, the following:

- Answering iClicker engagement questions correctly.
- Finding and reporting errors in course materials (the textbook, posted solutions, etc.). More extra credit is given for reporting mathematical errors, especially for ones which are not just misprints. You must say what the error is, and only the first two people to report an error can get extra credit.

Discussion Sections: Discussion sections are held one hour per week. In them you will engage in and turn in worksheets, have some homework questions answered, and take your two midterm exams. You must attend the section that you are registered for.

Accessibility: For those of you who are currently registered with the Accessible Education Center for a documented disability, please present your paperwork to me during the first week of the term (or earlier) so that we can design a plan for you. Those of you with a disability (or who might have one) but are not registered with the AEC should contact them as soon as possible. It is much more likely that measures can be taken to provide adequate special accommodation if the organization is done through the AEC, and I rely on them for documentation. I can’t help you with them if you miss their deadlines. (I know because...
I have tried this in the past.) I have attempted to provide documents that are accessible. Please let me know if you need additional accommodations.

**Student Conduct:** I plan to treat every student with respect and, as such, expect my students to show respect for me and for the class as a whole. Violations of the student conduct code result in the incident being included on your student conduct record as well as academic sanctions such as a failing grade on any coursework related to the violation or simply a failing grade in the course. The University of Oregon requires all instances of cheating to be reported, no matter how small. Cheating includes, but is not limited to:

- Looking at another student’s exam during a test.
- Copying the work of another person (student or otherwise) and submitting it as your own.
- Using any materials except those explicitly approved during a test-taking situation.
- Resubmitting graded work that was altered after being returned.
- Cooperating on work for the course (including exams) without being explicitly allowed to do so.

For a list of other things which constitute of cheating, see the Student Conduct Code, at [http://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code](http://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code).

**Suggestions for Successful Study:**

- Don’t get behind in your reading, homework, etc.
- Participate in class, ask questions, and make use of my office hours and the discussion leader’s office hours.
- Form a study group with others in the class. Work together on homework, but everyone must join in, and submit their own work in their own words. (This statement is explicit permission of the sort referred to under student conduct.)
- Read ahead in the book and watch the videos. A little bit of preparation will help the material sink in quicker during class and allow you to ask meaningful questions. The videos were made by someone else, and two explanations from two different people are often much more useful than two explanations from the same person.
- Keep all your old exams and worksheets. You’ll find them useful when you’re studying for tests.
- If you think you’ll need extra help, establish a tutoring plan right away. Check with the Tutoring and Academic Engagement Center (fourth floor of Knight Library) for free or private tutoring. Tutoring is also available in the Math Reading Room in Fenton Hall every day except Saturdays, and for pre-business majors in the Braddock Tutoring Center in Lillis Hall Monday through Thursday (information from 2019; not yet checked for 2020).

**Some Additional Comments About This Course:** There are a number of difficulties associated with large courses, and as such I require everyone’s cooperation to make our classroom experience positive and worthwhile. Here are some guidelines I ask you to follow during the term:

- If you are going to be late to class, make your entry as quietly as possible.
- Please, PLEASE, make sure your cell phone is turned off or silent before every class.
- We have limited time together during the term, so be ready to begin class promptly at 8:30 am and don’t start packing up until I’ve dismissed class.
- Sit as close to the front of the room as space will allow. The closer you are the easier it is for me to interact with you and for you to see the projected material.
- Don’t engage in side conversations during class. A pair of students can disrupt everyone nearby. If you have a question, you’ll find me very willing to oblige. Otherwise, take it outside.
- Understand how difficult it is for me to organize a large number of students during the term when everyone wants to submit late work. Bonus homework points are added to account for life’s little misfortunes. True emergencies are grounds for exceptions to the late work policy, but not because you slept in, had a project due in another class recently, or another unfortunate but avoidable happenstance.
**Tentative Weekly Schedule:** The following is a non-binding notion of where we will be and what we will do each week. The actual assignment deadlines will be provided in class and usually also on the course website.

<table>
<thead>
<tr>
<th>Week</th>
<th>Class Time Agenda</th>
<th>Discussion Activities</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.1, 7.2</td>
<td>Packet 1, Quiz 1</td>
<td>WeBWorK on 7.1, 7.2 due</td>
</tr>
<tr>
<td>2</td>
<td>7.2</td>
<td>Packet 2, Quiz 2</td>
<td>WeBWorK on 7.2 due</td>
</tr>
<tr>
<td>3</td>
<td>7.3</td>
<td>Packet 3, Quiz 3</td>
<td>WeBWorK on 7.3 due</td>
</tr>
<tr>
<td>4</td>
<td>5.1, Review</td>
<td>Exam 1 (7.1 - 7.3)</td>
<td>WeBWorK on 5.1 due</td>
</tr>
<tr>
<td>5</td>
<td>5.1, 5.2</td>
<td>Packet 4, Quiz 4</td>
<td>WeBWorK on 5.2 due</td>
</tr>
<tr>
<td>6</td>
<td>5.2, 5.3</td>
<td>Packet 5, Quiz 5</td>
<td>WeBWorK on 5.3 due</td>
</tr>
<tr>
<td>7</td>
<td>5.4, Review</td>
<td>Exam 2 (5.1 - 5.3)</td>
<td>WeBWorK on 5.4 due</td>
</tr>
<tr>
<td>8</td>
<td>5.5</td>
<td>Packet 6, Quiz 6</td>
<td>WeBWorK on 5.5 due</td>
</tr>
<tr>
<td>9</td>
<td>6.3, 6.4</td>
<td>Packet 7, Quiz 7</td>
<td>WeBWorK on 6.3, 6.4 due</td>
</tr>
<tr>
<td>10</td>
<td>Catch up; Review</td>
<td>Packet 8, Quiz 8</td>
<td>WeBWorK on 6.4 due</td>
</tr>
<tr>
<td>11</td>
<td>Comprehensive Final Exam (Thursday at 10:15 am)</td>
<td>None</td>
<td>No classes</td>
</tr>
</tbody>
</table>

**Important Dates** (more are listed on the course website):  
Saturday of 1st week (11 January) Last day to drop without a “W”  
Monday of 2nd week (13 January) Last day to add a class  
Monday of 3rd week (20 January) No Classes.  
Sunday of 7th week (23 February) Last day to withdraw (drop with a “W) or change to P/NP.

See the calendar on the Registrar’s website, at [http://registrar.uoregon.edu/calendars/academic?period=Winter2020](http://registrar.uoregon.edu/calendars/academic?period=Winter2020) for other Winter 2020 deadlines.

**Math 242 WeBWorK Assignments:** Homework will be collected and graded online. You view exercises and submit answers via the free online homework system WeBWorK.

**WebWork Login:** Follow the link on the course web page, or go to [https://webwork.uoregon.edu/webwork2/Math242Winter-Hathaway/](https://webwork.uoregon.edu/webwork2/Math242Winter-Hathaway/)

**Showing Work:** While doing your WeBWorK homework, I highly recommend having scratch paper at hand. Even though WeBWorK does not grade you on your process, having a comprehensive thought process is necessary. It will also help you track down mistakes that you make if the first submission is incorrect. **Remember: On exams showing your work will be extremely important!**

**Getting Help From:**

Me: You should make use of my, and discussion leader’s, office time whenever possible. Keep in mind that I may ask you questions about how you started the problem and encourage you to contribute to solving it, rather than simply handing you the result. For WeBWorK questions, please make use of the “Email Instructor” button on questions you’ve had difficulty with.

GE: You should make use of the discussion leader’s office hours as much as possible, because it isn’t possible to answer all questions from the homework during discussion.

Tutors: The Tutoring and Academic Engagement Center (Sky Studio on 4th floor of the Knight Library) has both free and private tutors available during most business hours. Free tutoring is also available in the Math Library Reading Room (across the hall from the math office in Fenton Hall) on weekdays and Sundays. Finally, free tutoring is available for pre-business majors in the Braddock Tutoring center Mon-Thurs 10–4 pm in 155 Lillis (information from 2019; not yet checked for 2020).

**Recommended First Week Review:** We will start with Chapter 7 in the text. We will be discussing functions and derivatives (but for functions with more than one input). Chapters 1–4 of the textbook would be a good review for what you’ll need at the beginning of Math 242.