COURSE SYLLABUS

Text: *Calculus: Single and Multivariable, 6th ed.* by Hughes-Hallet, et al., ISBN: 978-0470-88861-2.

ACE Outcome 3: This course satisfies ACE Outcome 3: "Use mathematical, computational, statistical, or formal reasoning (including reasoning based on principles of logic) to solve problems, draw inferences, and determine reasonableness." Your instructor will provide examples, you will discuss them in class, and you will practice with numerous homework problems. The exams will test how well you've mastered the material. The final exam will be the primary means of assessing your achievement of ACE Outcome 3.

Course Evaluation: The Department of Mathematics Course Evaluation Form will be available through your Canvas account during the last two weeks of class. You'll receive an e-mail when the form becomes available. Evaluations are anonymous and instructors do not see any of the responses until after final grades have been submitted. Evaluations are important–the department uses evaluations to improve instruction. Please complete the evaluation and take the time to do so thoughtfully.

Scheduling A tentative schedule of assignments and exams is included in this syllabus. Your instructor may change the order of the topics, modify the list of exercises and introduce new assignments. It is your responsibility to keep track of the course details and the schedule for your section.

Daily Work/Attendance: Do an initial reading of the section(s) expected to be covered before coming to class each day–even if you don't understand the details, that reading will help you to better understand the lecture. Rereading more carefully after the class can also be helpful. The exercises listed below represent a minimum assignment and should be done as the material is covered. Class attendance is mandatory, which means absences many result in loss in point.

Hour Exams/Quizzes/Homework: All hour exams are given on either Wednesdays or Thursdays of the scheduled weeks. A number of quizzes will be given on recitation Thursdays. A number of homework will be assigned on lecture days that will be collected for credit on recitation Thursdays. It is your responsibility to keep track of these assignments which will not be transmitted electronically.

Course Grade: Here is a tentative point distribution for the course: 200 for the Final Exam, 100 each for three Hour Exams, a combined total of no more than 120 for quizzes and homework, 20 for class attendance. Your percentage number grade will be converted to a letter grade by a standard conversion table, e.g. 80–83.33 for B, 83.34–86.66 for B+, and 86.67–89.99 for A-, etc.

Calculators: Calculators will not be allowed on any exam in this course.

Communication Devices: **Except for iClickers, no phones or any devices capable of wireless communication** including smart-watches are permitted at any time. As a courtesy to others please **silence your phones (and switch off the vibrate mode)** when you come to class.

Final Exam: The time for the final exam is **6:00-8:00 pm, Thursday, May 7, Room TBA**. The final exam will be a comprehensive exam. You are expected to arrange your personal and work schedule to allow you to take the exam at the scheduled time. Students with conflicting exam schedules may be allowed to take an alternate final, which is always given after the regularly scheduled final. No student will be allowed to take the final exam early. A picture ID (driver's license or student ID) is required to take the final exam.

Retroactive Credit: If this is the first college mathematics course that you have attempted, then you may be eligible for 10 hours of free credit for Math 106 and Math 107, provided you earn a grade of P, C or better in Math 208 this semester. To be considered for this credit, you should completed a Request for Retroactive Credit form with the Department of Mathematics, 203 Avery Hall, or the College of Arts and Sciences Academic and Career Advising Center, 107 Oldfather Hall, by Friday, January 31, 2020. Students who already have credit for Math 106 and Math 107 do not need to completed the form (if you don't know, please check with your advisor).

Department Grading Appeals Policy: The Department of Mathematics does not tolerate discrimination or harassment on the basis of race, gender, religion or sexual orientation. If you believe you have been subject to such discrimination or harassment in this or any math course, please contact the department. If, for this or any other reason, you believe that your grade was assigned incorrectly or capriciously, appeals should be made to (in order) the instructor, the department chair, the department grading appeals committee, and the college grading appeals committee.

ADA Language: Students with disabilities are encouraged to contact the instructor for confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

Revised Policy and Syllabus for Remote Learning

This revision aims to make minimum changes to our course structures we set forth in the beginning of the semester.

Lecture: Each lecture will be recorded in two 20 $\sim$ 25 minute videos. There should be three lectures and six videos each week. They will be posted to Vidgrid. Links to the videos will be posted in Canvas/Modules each week for the remaining semester.

Homework: There will be three homework assignments each week. Each will be assigned by 5:00 pm Friday, Monday, or Wednesday, due by 5:00 pm the following Monday, Wednesday, or Friday, respectively. All times are in U.S. Central Time. The same requirements as before apply: write/type every question verbatim before solution, organize your solution in a logical sequence, and in detail, write/type in neat form, do not share any work in written form. Each assignment consists of **two** problems, which must be fitted into one page. Homework template, with Name and NUID number fields, will be posted to Gradescope and Canvas/Modeles. You must upload your submission to Gradescope according to your recitation section. Each homework in good faith is worth 5 points. Your TA will only choose one of the three to grade in details each week for an additional **5** points. Solution keys will be posted after the assignments are graded.

Exam 2: There will be only **one** midterm exam, Exam 2. We will take the flexibility of on-line scheduling to have Exam 2 on Thursday, April 16. It is an open-book exam. You must do it independently, not working with others. It will be posted to Gradescope and Canvas/Modules by 12:00 pm, Thursday, April 16. It is due by 5:00 pm Friday, April 17, by submission to Gradescope. This exam is worth 100 points.

Final Exam: The final exam is a unit, comprehensive, and open book final. It is worth 200 points. Just like Exam 2, you need to submit your work to Gradescope. More information will be given later.

Office Hours: I will hold weekly office hours 2:30-3:00 MWF on Zoom. I will post the links weekly to Canvas/Modules.

Class Page: All sample exams will remain in our class page, outside Canvas.

Academic Honesty: Exams will be open book. However, unlike homework assignments you must not work with others or asking help from other people. You will be asked to sign a statement on each exam to testify to that effect. If a case of a clear violation arises, I will arrange a Zoom meeting with you for explanations.

Course Grade: Here is a tentative point distribution for the course: 200 for the Final Exam, 100 each for two Hour Exams, 10 for class attendance I collected before the remote learning switch, 200 total for combined quizzes and homework assignments. Your percentage number grade will be converted to a letter grade by a standard conversion table, e.g. 80–83.33 for B, 83.34–86.66 for B+, and 86.67–89.99 for A-, etc.

Dates	Sections/Topic	Exercises
Jan 13–17	12.1 Functions of Two Variables	1–4, 6, 10, 11, 13, 14, 17, 21, 23, 25, 29, 30
	12.2 Graphs of Functions of Two Variables	1, 2, 3, 7, 8, 10, 15, 16, 18–20, 23–25
	12.3 Contour Diagrams	1, 2, 4, 5, 7– 9, 13, 16, 17, 24, 27(a,b)
	12.4 Linear Functions	1–5, 7–11, 13, 21, 23, 26, 27
Jan 20–24	**Jan 20, Martin Luther King Day**	(no class)
	Quiz 1, Tuesday	
	12.5 Functions of Three Variables	1–4, 8–11, 13, 15, 16–18, 23, 31
	12.6 Limits and Continuity	1, 2, 3, 6, 7, 9, 11–14, 19, 23
	13.1 Vectors	1, 2, 5, 7, 12, 15, 24, 25, 29, 31, 32, 39(b), 40, 41
Friday, Jan 24, is the last day to drop without a W.		
Jan 27–31	13.2 Vectors	1–5, 7, 10, 11, 16, 20, 30, 36
	13.3 The Dot Product	1, 5–19(odd), 23, 25–27, 29, 31, 33, 38, 40, 41, 43, 45
	13.4 The Cross Product	2, 3, 7, 9, 11, 14, 15 ,17,19, 20, 23, 27, 29, 31,33, 39
	Catch up/Review	
Feb 3–7	14.1 The Partial Derivative	1, 3, 5, 10–12, 17–19, 21, 22, 24, 25, 30
	14.2 Computing Partial Derivatives	1, 3–5, 9, 11, 18, 21–25, 31, 39–41, 44, 45, 49
	Quiz 2, Tuesday	
	14.3 Local Linearity	1, 2, 3, 5, 6, 7, 9, 11, 13, 18, 20, 22, 23
	14.4 Gradients and Directional Derivatives	1–8, 15, 17, 20, 21, 23–26, 29–33, 37
Feb 10–14	14.4 Gradients and Directional Derivatives	39, 45, 46, 49, 51, 53, 56–59, 61, 67, 69–71, 75
	14.5 Gradients and Directional Derivatives	2, 3, 7, 9, 14, 17–19, 21, 25–27, 35, 37–41, 46, 47, 53, 56, 57
	14.6 The Chain Rule	1, 2, 3, 5, 7, 9, 11–15, 17, 20, 23, 24, 28, 33, 38
	Catch up/Review	
Feb 17–21	14.7 Second-Order Partial Derivatives	1, 3, 6, 11, 13, 14, 16, 19–21, 23–31(odd), 34, 35, 37, 41, 44
	Exam 1 is Tuesday, Feb. 18	
	15.1 Local Extrema	1–4, 6, 7–35(odd)
	15.2 Optimization	2, 5, 7, 8, 9, 10–13, 15, 17, 19, 20
Feb 24–28	15.3 Constrained Optimization	1, 3, 5, 6, 7, 9–13, 17–19, 22, 24, 30, 31, 32, 45
	Quiz 3, Tuesday	
	Catch up/Review	
	16.1 The Definite Integral in the Plane	1, 3, 6–11, 13, 15, 22, 23
	16.2 Iterated Integrals	1–4, 9–23(odd), 29, 33–38
Mar 2–6	16.2 Iterated Integrals	42, 43–51(odd), 52, 54, 55
	16.3 Triple Integrals	1-9(odd),11–27(odd), 28–30, 33, 34–37, 39, 41, 45, 50, 57
	21.2 Change of variables (optional)	1, 3, 4, 5–7, 9, 13, 15
	16.4 Double Integrals in Polar Coord.	1–8, 10–12, 14–17, 19, 21, 24, 25, 27, 28, 30, 31,33
Friday, March 6, is the last day to change your grade option to or from Pass/No Pass.		
Mar 9–13	16.5 Triple Integrals in Cylindrical Coord.	1, 3–7, 9, 13–15, 21, 23, 27–37(odd), 48, 49, 57–59
	16.5 Triple Integrals in Spherical Coord.	8, 10, 11, 24, 30, 32, 39, 43, 47, 65
	Quiz 4, Tuesday	
	Catch-up and Review	
Mar 16–20	**UNL Canceled Classes**	
Mar 22–29	**Spring Break**	
Mar 30–Apr 3	17.1 Parameterized Curves	1–7,11,13,19,21,26,29,43–49(odd)
	17.2 Motion, Velocity and Acceleration	1,3, 5, 9, 10,13, 15, 17, 21–23
	17.3 Vector Fields	1–5, 7, 9, 11, 13, 15, 16, 20, 21–27(odd), 28, 30, 31, 33
	18.1 The Idea of a Line Integral	1–8, 11,13, 15–21(odd), 25–28, 31, 32, 36,46
	18.2 Computing Line Integrals	1–23(odd), 26, 29–35(odd)
Friday, April 3, is the last day to withdraw from the course and receive a grade of W.		
Apr 6–Apr 10	18.3 Gradient Fields and Path-Indep.	1, 3, 4, 5, 7, 8, 9, 10, 13, 15, 17–21, 27, 29, 31, 32, 38, 39, 48
	18.4 Green's Theorem	1–17(odd), 19, 20, 22, 26, 27, 33, 34, 39
	19.1 The Idea of a Flux Integral	1–9, 13, 14, 16–19, 21, 25, 26, 29–35(odd), 39, 48
	21.1 Parameterized Surfaces	1–8, 10–13, 17, 15, 17, 19, 20
Apr 13–17	21.3 Flux Through Parameterized Surfaces	1–3, 5–9, 11, 12
	19.2 Flux Integrals through graphs	1–6, 7, 9, 11, 13, 15, 16, 17, 21–23 19, 29, 31, 33, 37 41-43
	Catch up/Review	
	Exam 2 is Thursday, Apr. 16	
	19.3 The Divergence of a Vector Field	1, 3, 4, 5–11(odd), 12, 17–20, 24, 29, 36
Apr 20–24	19.4 The Divergence Theorem	1, 2,3–9(odd), 8, 14–17, 19, 23, 25, 28, 32
	20.1 The Curl of a Vector Field	1–5, 7, 11–16, 25
	20.2 Stokes' Theorem	1–5, 7, 9, 11, 14, 17–19, 21, 23, 25–27
Apr 27–May 1	Catch up/Review	
The Final Exam is 6:00-8:00 pm, Thursday, May 7, Room: TBA.		