# 

**Math 223-008, Spring 2022**

**General Information**

*Lecture Time:* MTWR 3:00-3:50pm

*Location*: Psych 205

*D2L Site:* Will serve as the central hub for communication and materials.

*Textbook:* *Multivariable Calculus*; Sixth Edition by Hughes-Hallett et al.; published by Wiley

**Instructor and Contact Information**

*Instructor:* Qiudong (Don) Wang

*Office:* Math 313

*Email:* dwang@math.arizona.edu

*Office Hours*: MTW, 9:00-10:00am, RF, 10:00-11:00am through Zoom sessions

**Homework and Quiz**

*WebAssign:* Homework is assigned and graded every week through WebAssign. Homework for a given week are due at the mid-night of Sunday of that week. Note that this deadline is, in principle, strictly imposed by WebAssign. It is the responsibility of the student to finish these weekly assignments on time.

*Written Homework:* I will also assign additional set of written homework every week. I will not collect this set of homework. However, there will be a quiz of 10-15 minutes long on every Monday in class. *Weekly Quiz:* Quiz problems will be directly from the written homework assigned for the previous week.

**Mid-terms and Finals**

*Midterms:* There will be three mid-terms. Mid-term I is scheduled on Monday, Feb. 14th; Mid-term II is scheduled on Monday, March. 21st, and Midterm III is scheduled on Monday, April. 18th. All Mid-term are in class, 50 minutes long.

*Final Exam:* The final exam is two hours long, and it is comprehensive. This is a common exam for all sections of math 223 offered by the department this semester (10 sections in total). It is scheduled on Tuesday, May 10th from 1:00-3:00pm.

**Final Grade**

The homework graded by WebAssign worth 100 pts in total; Quizzes also worth 100 pts in total; and so do each of the Mid-terms. Final Exam worth 150 points. The total counting is 650 points. Your final grades will be:

A if your total > 580; B if your total > 510; C if you total > 540; D if your total > 470; E if your total < 470.

**Calculator**

Graphic calculator is a useful tool for this class. All models are allowed in mid-terms and in the final exam.

**Tentative Daily Scheduled Topics/Activities- Spring 2022**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Month*** |  |  | ***Section*** | ***Topics*** | ***Assessments*** |
| **Jan** | 12 | **W** | 13.1 | Intro, 13.1-Displacement Vectors |  |
|  | 13 | **R** | 13.1 | 13.1-Displacement Vectors |  |
|  |  |  |  |  |  |
|  | 17 | **M** |  | ***Martin Luther King Jr Holiday*** |  |
|  | 18 | **T** | 13.2,13.3 | 13.2-Vectors in General, 13.3-The Dot Product |  |
|  | 19 | **W** | 13.3 | 13.3-The Dot Product |  |
|  | 20 | **R** |  | Problem session/Catch-up |  |
|  |  |  |  |  |  |
|  | 24 | **M** | 13.4 | 13.4- The cross Product | **Quiz 1** |
|  | 25 | **T** | 12.1 | 12.1- Functions of two variables | ***Last day to drop*** |
|  | 26 | **W** | 12.2 | 12.2-Graphs and Surfaces |  |
|  | 27 | **R** |  | Problem session/Catch-up |  |
|  |  |  |  |  |  |
|  | 31 | **M** | 12.3 | 12.3-Contour Diagrams | **Quiz 2** |
| **Feb** | 1 | **T** | 12.4 | 12.4-Linear Functions |  |
|  | 2 | **W** | 12.5 | 12.5-Functions of Three Variables |  |
|  | 3 | **R** |  | Problem session/Catch-up |  |
|  |  |  |  |  |  |
|  | 7 | **M** | 14.1 | 14.1-The Partial Derivative | **Quiz 3** |
|  | 8 | **T** | 14.2 | 14.2-Computing Partial Derivatives Analytically |  |
|  | 9 | **W** | 14.3 | 14.3-Local Linearity & Differentials |  |
|  | 10 | **R** |  | Problem session/Catch-up |  |
|  |  |  |  |  |  |
|  | 14 | **M** |  | **Test 1** | **Test 1** |
|  | 15 | **T** | 14.4 | 14.4-Gradients & Directional Derivatives in the Plane |  |
|  | 16 | **W** | 14.5 | 14.5- Gradients & Directional Derivatives in space |  |
|  | 17 | **R** |  | Problem session/ catch up |  |
|  |  |  |  |  |  |
|  | 21 | **M** | 14.6 | 14.6-The Chain Rule | **Quiz 4** |
|  | 22 | **T** | 14.7 | 14.7-Second-Order Partial Derivatives |  |
|  | 23 | **W** | 16.1 | 16.1-The Definite Integral of a Function of Two Variables |  |
|  | 24 | **R** |  | Problem session/ catch up |  |
|  |  |  |  |  |  |
| **Mar** | 28 | **M** | 16.2 | 16.2-Iterated Integrals | **Quiz 5** |
|  | 1 | **T** | 16.3 | 16.3-Triple Integrals |  |
|  | 2 | **W** | 16.4 | 16.4-Double Integrals in Polar Coordinates |  |
|  | 3 | **R** |  | Problem session/ catch up |  |
|  |  |  |  |  |  |
|  | 14 | **M** | 16.5 | 16.5-Integrals in Cylindrical & Spherical Coordinates | **Quiz 6** |
|  | 15 | **T** | 17.1 | 17.1-Parametric Curves |  |
|  | 16 | **W** | 17.1 | 17.1-Parametric Curves |  |
|  | 17 | **R** |  |  |  |
|  |  |  |  |  |  |
|  | 21 | **M** |  | **Test 2** | **Test 2** |
|  | 22 | **T** | 17.2 | 17.2-Motion, Velocity, &Acceleration |  |
|  | 23 | **W** | 17.2 | 17.2-Motion, Velocity, &Acceleration |  |
|  | 24 | **R** |  | Problem session/ catch up |  |
|  |  |  |  |  |  |
|  | 28 | **M** | 17.3 | 17.3-Vector Fields | **Quiz 7** |
|  | 29 | **T** | 18.1 | 18.1-The Idea of a Line Integral |  |
|  | 30 | **W** | 18.1 | 18.1-The Idea of a Line Integral | ***Last day to file for GRO*** |
|  | 31 | **R** |  | Problem session/ catch up |  |
|  |  |  |  |  |  |
|  | 4 | **M** | 18.2 | 18.2-Computing Integrals over Parameterized Curves | **Quiz 8** |
|  | 5 | **T** | 18.3 | 18.3-Gradient Fields & Path Independent Fields | ***Last Day to withdraw*** |
|  | 6 | **W** | 18.4 | 18.4-Path Idependent Vector Fields & Green’s Theorem |  |
| **Apr** | 7 | **R** |  | Problem session/ catch up |  |
|  |  |  |  |  |  |
|  | 11 | **M** | 18.4 | 18.4-Path dependent Vector Fields & Green’s Theorem | **Quiz 9** |
|  | 12 | **T** | 19.1 | 19.1-The Idea of Flux Integrals, |  |
|  | 13 | **W** | 19.2 | 19.2 Flux Integrals for Graphs, Cylinders, & Spheres |  |
|  | 14 | **R** |  |  |  |
|  |  |  |  |  |  |
|  | 18 | **M** |  | **Test 3** | **Test 3** |
|  | 19 | **T** | 19.2 | 19.2 Flux Integrals for Graphs, Cylinders, & Spheres |  |
|  | 20 | **W** | 19.3 | 19.3-The Divergence of a Vector Field |  |
|  | 21 | **R** |  | Problem session/ catch up |  |
|  |  |  |  |  |  |
|  | 25 | **M** | 19.4 | 19.4 The Divergence Theorem | **Quiz 10** |
|  | 26 | **T** | 19.4 | 19.4 The Divergence Theorem |  |
|  | 27 | **W** | 20.1 | 20.1-The Curl of a Vector Field |  |
|  | 28 | **R** |  | Problem session/ catch up |  |
|  |  |  |  |  |  |
|  | 25 | **M** | 20.2 | 20.2-Stoke’s Theorem | **Quiz 11** |
|  | 26 | **T** | 20.2 | 20.2-Stoke’s Theorem |  |
|  | 27 | **W** | 15.1 | 15.1-Critical Points: Local Extrema & Saddle Points |  |
|  | 28 | **R** |  | Problem session/ catch up |  |
|  |  |  |  |  |  |
| **May** | 2 | **M** | 15.1 | 15.1-Critical Points: Local Extrema & Saddle Points |  |
|  | 3 | **T** |  | Review |  |
|  | 4 | **W** |  | Review- ***Last Day of class*** |  |
|  | 5 | **R** |  | ***Reading day-No Class*** |  |
|  | 10 | **T** |  | **Final Exam (comprehensive-Chapters 12-20)** | **Final Exam (1-3pm)** |