MAT 211 Calculus III, Section 01, CN 23329 Spring 2024

Class meets MWF 2:30 PM - 3:55 PM in SBS B203.

Instructor: Serban Raianu, office: NSM E-108, office phone: (310) 243-3139, cell phone: (657) 204-5612; e-mail address: sraianu@csudh.edu, URL: http://math.csudh.edu/~sraianu; office hours: Monday, Wednesday: 10:00 AM – 11:10 AM, Friday: 10:00 AM – 11:00 AM, or by appointment.

Course Description: MAT 211, Calculus III, covers from the textbooks: Multivariable calculus: analytic geometry, scalar and vector products, partial differentiation, multiple integration, change of coordinates, gradient, optimization, line integrals, Green's theorem, elements of vector calculus.

Text: CLP-3 Multivariable Calculus and CLP-4 Vector Calculus, by Joel Feldman, Andrew Rechnitzer, Elyse Yeager, available online at http://www.math.ubc.ca/~CLP/

Objectives: After completing MAT 211 the student should be able to:
- Gain an intuitive understanding of functions of several variables via level curves and surfaces, and related concepts of limit, continuity and differentiability.
- Perform partial differentiation and multiple integration of functions of several variables.
- Change from Cartesian co-ordinates to polar, cylindrical or spherical co-ordinates and vice versa, perform differential (partial or ordinary) and integration (multiple or single) in curvilinear co-ordinate systems and effect transformation via the Jacobian.
- Utilize vectors to deal with spatial curves and surfaces, and calculus of several variables
- Understand and use the concepts of vector calculus: gradient, curl, divergence, line and surface integrals, Green's, Stokes' and the divergence theorem.

Prerequisites: MAT 193 or equivalent with a grade of "C" or better.

Grades: Grades will be based on **three full period written examinations** (60% total), a comprehensive **final examination** (25%), and **quizzes**, **homework** and (possibly) other assignments (15%) for the remainder.
The exact grading system for your section is the following:

No makeup examinations will be given. The exams are taken in class and graded on Gradescope. If you must miss an examination for a legitimate reason, discuss this, in advance, with me, and I may then substitute the relevant score from your final examination for the missing grade. Each of the **three exams** will be graded on a 0-20 scale, then the sum of the scores is denoted by E.

Homework will be due in principle every week, the day before quiz days, and each homework is worth 10 points. Each week one of the problems from the homework due for that week will be selected and graded on a scale from 0 to 4. The remaining 6 points will be awarded for completeness of the homework assignment. Submitting solutions copied from the back of the book will bring little or no credit, since copying solutions will not prepare you for answering questions on exams. The average of all homework scores is denoted by H. Homework will be submitted as a pdf on Gradescope. There is no need to match the pages with the problems when submitting the homework, see
https://www.youtube.com/watch?v=u-pK4GzpId0
Gradescope can be accessed from the link your Canvas course, and you can practice submitting your work on Gradescope using the assignment called Submission practice, which will remain open throughout the semester. No late homework will be accepted.

15 minutes quizzes will be given in principle every week, and will be graded on a scale from 1 to 5. The average of the quizzes scores is denoted by Q. Each quiz will consist of one problem, similar but not necessarily identical to one of the homework problems assigned for that week. The quiz will be taken in class and graded in class and on Gradescope. No makeup quizzes will be offered.

The **problems on the final exam will be similar to problems assigned as homework throughout the semester,** the exam will be graded out of a maximum possible 25 points; the score is denoted by F. The final exam will be taken in class and graded on Gradescope.

Extra credit opportunities will be announced in class.

To determine your **final grade**, compute E+H+Q+F. The maximum is 100, and the grade will be given by the rule:

A: 93-100; A-: 90-92; B+: 87-89; B: 83-86; B-: 80-82
C+: 77-79; C: 73-76; C-: 70-72; D+: 67-69; D: 60-66; F: Less than 60.

You will be able to follow your progress in the class in Canvas under Grades throughout the semester.

Accommodations for Students with Disabilities: California State University, Dominguez Hills adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with temporary and permanent disabilities. If you have a disability that may adversely affect your work in this class, I encourage you to register with Student disAbility Resource Center (SdRC) and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. Please note: no accommodation may be made until you register with the SdRC in WH D-180. For information call (310) 243-3660 or to use telecommunications Device for the Deaf, call (310) 243-2028.

Academic Integrity: The mathematics department does not tolerate cheating. Students who have questions or concerns about academic integrity should ask their professors or the counselors in the Student Development Office, or refer to the University Catalog for more information. (Look in the index under "academic integrity".)

Tentative schedule and homework assignments

M 1/22:   **Calculus II review**
W 1/24:   From CLP-3: 1.1 Points: 1,2,3; 1.2.1 Vectors, add, multiply by scalar: 1,2,16
F 1/26:   1.2.2 Dot product: 3,6,7,21,22,23
M 1/29:   1.2.5 Cross product: 8,9,10,26,27,28,29
W 1/31:   1.3 Lines in 2d: 5,6,7; 1.4 Planes in 3d: 4,5,6,7,8; 1.5 Lines in 3d: 3,4,5,6,7
F 2/2:   1.6 Curves and their tangent vectors: 10,11,12,13,14,15,16,17
M 2/5:   1.7,1.8,1.9 Surfaces: 7,8,9,10,11
W 2/7:   2.1 Limits: 6,7,8,9,10,11
F 2/9:   2.2 Partial derivatives: 3,4,5,6; 2.3 Higher order derivatives: 3,4,5
M 2/12:   2.4 Chain rule: 1,4,5,6,7,8,9
W 2/14:   2.5 Tangent planes and normal lines: 5,6,7,8,9,10,11,12,13
F 2/16:   2.6 Linear approximation and error: 3,4,5,6,7
M 2/19:   **Presidents Day Holiday**
W 2/21:   **Review**
F 2/23:   **Exam I**
M 2/26:   2.7 Directional derivatives and the gradient: 1,2,3,4,5,6,7
W 2/28:   2.9 Maximum and minimum values: 4,5,6,15,16,17
F 3/1:   2.10 Lagrange multipliers: 3,4,5,6,7,8
M 3/4:   3.1 Double integrals: 1,2,3,4,5,6,7
W 3/6:   3.2 Double integrals in polar coordinates: 1,2,3,4,5,6,7,8,9,10
F 3/8:   3.3 Applications of double integrals: 2,3,4,5,6
M 3/11:   3.4 Surface area: 4,5,6,7,8,9,10
W 3/13:   3.5 Triple Integrals: 1,2,3,5,6
F 3/15:   3.6 Triple integrals in cylindrical coordinates: 1,2,3,4,5,6,7,8
M 3/18:   3.7 Triple integrals in spherical coordinates: 1,2,3,4,5,6,7,8,9,10
W 3/20:   **Review**
F 3/22:   **Exam II**
M 3/25:   From CLP-4: 1.1 Curves, derivatives, velocity, etc.: 1,2,3,4,14,15,16,17
W 3/27:   1.2 Reparametrization: 1,2,3,4,5
F 3/29:   1.6 Integrating along a curve: 1,2,4,5,6,7,8
M 4/1:   **Spring Recess**
W 4/3:   **Spring Recess**
F 4/5:   **Spring Recess**
M 4/8:   2.1 Vector fields, definitions and first examples: 1,2,3,4,5,6,7,8
W 4/10:   2.3 Conservative vector fields: 1,2,3,4,5,6,7,8
F 4/12:   2.4 Line integrals: 3,4,5,6,8,9,10,11,12
M 4/15:   3.1 Parametrized surfaces: 1,2,3,4,5,6
W 4/17:   3.2 Tangent planes: 6,7,8,9,10,11,12
F 4/19:   3.3 Surface integrals: 4,5,6,7,8,9,10
M 4/22:   3.4 Interpretation of flux integrals: (from 3.3) 24,25,28,29,30,35,36
W 4/24:   4.1 Gradient, divergence and curl: 1,2,3,4,5
F 4/26:   4.2 The divergence theorem: 1,2,3,4,5
M 4/29:   4.3 Green's theorem: 1,2,3,4,5,6,7,8
W 5/1:   4.4 Stokes' theorem: 1,2,3,4,5,6,7
F 5/3:   **Review**
M 5/6:   **Review**
W 5/8:   **Exam III**
F 5/10:   **Final review**

Final examination: Wednesday, May 15, 2:30 PM – 4:30 PM.

Important Dates:
January 17 Wednesday Spring Semester Begins
January 19 Friday Instructional Preparation Day
January 21 Sunday Last day for students on Waitlist to be added to classes; all waitlists will
be cancelled at midnight.
January 22-February 9 Monday-Friday Late Registration and Add/Drop via MyCSUDH – fees due 48
hours after registration
January 22 Monday Classes Begin

February 1 Thursday Summer 2024 Graduation Application Deadline – without late fee

February 8 Thursday Instructor Drop Deadline

February 8 Thursday Credit/No Credit and Audit Grading Deadline

February 10-15 Saturday-Thursday Late Registration and Add/Drop via MyCSUDH – fees due at time of
registration

February 16 Friday Last Day to Drop from FT to PT Status with Refund

February 16 Friday Drop without Record of Enrollment Deadline via Change of Program
Form

February 16 Friday Student Census

February 19 Monday President's Day Holiday – NO CLASSES, CAMPUS OPEN

February 19-April 19 Monday-Friday Serious and Compelling Reason Required to Withdraw

February 20-May 16 Tuesday-Thursday May Intersession Registration – fees due at time of registration

March 18-July 5 Monday-Friday Summer 2024 Registration – fees due at time of registration

March 23 Saturday Last Day for Pro-rata Refund of Non-Resident Tuition and Tuition Fees

March 31-April 6 Sunday-Saturday Spring Recess

March 31 Sunday Cesar Chavez Day Holiday – NO CLASSES, CAMPUS CLOSED

April 1 Monday Cesar Chavez Day – Observed – NO CLASSES, CAMPUS CLOSED

April 15 Monday First Day to file for Spring 2025 Graduation

April 15 Monday Summer 2024 Graduation Application – Late Deadline – with late fee

April 15-August 18 Monday-Sunday Fall 2024 Registration begins via MyCSUDH

April 22-May 10 Monday-Friday Serious Accident/Illness Required to Withdraw

May 10 Friday Last Day of Scheduled Classes

May 11-17 Saturday-Friday Final Examinations

May 11 Saturday Grade Submission Begins

May 17-18 Friday-Saturday Commencement (for more information see ceremony schedule)

May 20 Monday Evaluation Day

May 21, 3 p.m. Tuesday Final Grades Due – College of Continuing and Professional Education
grades always due 72 hours after course end date