

# Syllabus.

## MATH-292-3688: Calculus III, Fall 2021.

### **Instructor Information Including Contact Information.**

Instructor Name: Kit Newton.

Email: [knewton@dvc.edu](mailto:knewton@dvc.edu)

Office: MA-128

Phone: 925-969-2674

#### Office Hours and Location:

Monday 2:30 PM – 4:00 PM (Zoom)

Tuesday 11:15 AM – 12:30 PM (in person)

Wednesday 12:35 PM – 1:35 PM (in person)

Thursday 11:15 AM – 12:30 PM (in person)

In person office hours will be held in my office on Diablo Valley College's Pleasant Hill Campus, room MA-128. Zoom office hours will be held in my personal Zoom room, the meeting number is 697 290 8082 with the passcode "officehour", or you can use the [link here](#).

### **General Course Information.**

Course #: 292

Section: 3688

Days/Times: Tuesday, 2:30 PM – 5:00 PM

Thursday, 2:30 PM – 5:00 PM

Location/Instruction Mode: Diablo Valley College, Pleasant Hill Campus, Math Building Room 244/In Person

Units: 5

Semester: Fall

Year: 2021

### **Textbook/Materials/Supplies Required.**

Our recommended book is "Calculus: Early Transcendentals" by James Stewart, 8<sup>th</sup> edition, 2015. You do not necessarily have to purchase the book to participate in the class, it is available through the library. Reading will be recommended from the book. Please note that we are not using WebAssign. Homework assignments will be distributed through Canvas, no WebAssign or WebWork is required. Calculators are not required, we will use the CAS "[SageMath](#)" available free, as needed. You must wear a face mask to come to campus and attend class. Face masks must cover the nose and mouth and fit snugly to the sides of the face, under the chin, and nose. Single layer scarfs or gaiters, masks with valves, or masks made out of mesh are not acceptable. Please see the [CDC guidelines for masks](#) if you have questions. If you do not have a mask, disposable masks will be provided. If you refuse to wear a mask or comply with the mask

guidelines, you will be required to leave campus, I will record your name and student ID number, and you will be subject to the Student Code of Conduct sanctions.

No technology is required to participate in this class, unless it becomes necessary for us to move the class online due to COVID. If we move online, we will have synchronous Zoom meetings, and your computer will need to support synchronously joining our class over Zoom, with a webcam, microphone, and internet connection.

## **Course Description.**

This course is a continuation of MATH-193. Topics include limits, parametric equations, vector-valued functions, analytic geometry of three dimensions, partial derivatives, multiple integrals, and Green's, Stokes', and the Divergence theorems.

## **Course Outline.**

1. Vectors and vector operations in two and three dimensions
2. Vector and parametric equations of lines and planes; rectangular equation of a plane
3. Dot, cross, and triple products and projections
4. Differentiability and differentiation including partial derivatives, chain rule, higher-order derivatives, directional derivatives, and the gradient
5. Arc length and curvature; tangent, normal, binormal vectors
6. Vector-valued functions and their derivatives and integrals; finding velocity and acceleration
7. Real-valued functions of several variables, level curves and surfaces
8. Limits, continuity, and properties of limits and continuity
9. Local and global maxima and minima extrema, saddle points, and Lagrange multipliers
10. Vector fields including the gradient vector field and conservative fields
11. Double and triple integrals
12. Applications of multiple integration such as area, volume, center of mass, or moments of inertia
13. Change of variables theorem
14. Integrals in polar, cylindrical, and spherical coordinates
15. Line and surface integrals including parametrically defined surfaces
16. Integrals of real-valued functions over surfaces
17. Divergence and curl
18. Green's, Stokes', and divergence theorems

## **Prerequisites.**

MATH-193, or equivalent.

## **Attendance Policy.**

We have in-person class meetings at the scheduled meeting time. Attending class is important for learning the material and succeeding in the class. If you are sick, you are not allowed to come to

class. (This includes any symptoms of COVID-19 such as fever, chills, cough, new loss of taste or smell, fatigue, muscle or body aches, headache, sore throat, congestion or runny nose, nausea or vomiting, diarrhea, or shortness of breath or difficulty breathing, or any other symptoms of illness). We will have a quiz every class that will serve as attendance. Because of the uncertainty surrounding COVID-19, the lowest four quizzes will be dropped (in other words, you can miss two weeks of class to quarantine without explanation or penalty). If you must miss more class than that, I can grant extra drops, but you must provide some evidence for why you must miss class, such as a doctor's note.

## **Communication Plan for Faculty and Students.**

I aim to respond to email within 24 hours during the week (not including evenings and weekends). Course related announcements will be sent to the class through Canvas Inbox. Although I will try to make the same announcements during our class time, it will still be important for you to check your student email account and Canvas regularly to make sure you're not missing anything.

## **Homework and Late Submission Policies**

We will have two midterm exams, twice weekly homework, twice weekly quizzes, and a final exam. That means we will have homework due every class period, and a quiz every class period. If you have school or career obligations that conflict with tests, email me at least a week ahead of time for possible accommodations.

In case of emergency, extensions on assignments may be possible. Please contact me about an extension **before** the due date/time. I will let you know if an extension has been granted and provide you with the updated due date/time. Assignments submitted after the due date/time without prior approval will receive zero credit.

## **Submission of Assignments**

Assignments will be turned in during class, in person, on paper.

## **Student Learning Outcomes.**

Students will be able to:

1. Perform vector operations.
2. Determine equations of lines and planes.
3. Find the limit of a function at a point.
4. Evaluate derivatives.
5. Write the equation of a tangent plane at a point.
6. Determine differentiability.
7. Find local extrema and test for saddle points.

9. Solve constraint problems using Lagrange multipliers.
10. Compute arc length.
11. Find the divergence and curl of a vector field.
12. Evaluate two and three dimensional integrals.
13. Apply Green's, Stokes', and divergence theorems.

## Support and Resources.

- [MathLab](#) (available remotely, see [video](#) for instructions!)
- [Counseling](#) (available remotely)
- [Disability Support Services](#) (for students seeking accommodations)
- [Library](#)
- [Multicultural Center](#)
- [Financial Aid](#) (including COVID assistance)
- [Basic Needs](#) (food, shelter, health services)

## Evaluation Criteria and Grading Standards.

Assignment	Percentage of Final Grade
Homework	15
Quizzes	20
Exam 1	20
Exam 2	20
Final Exam	25
<b>Total</b>	100

Grading Scale:

<b>Grade</b>	A	B	C	D
<b>Score</b>	90-100	80-89	60-79	50-59

Final grades are recorded as A=4.0, B=3.0, C=2.0, D=1.0, F=0. Grade totals will be rounded to the nearest whole number to determine the final letter grade assigned.

## Syllabus Changes.

I may modify the syllabus or schedule with reasonable notice to you. Look for an Announcement in Canvas and an email.

## ADA.

Diablo Valley College has Disability Support Services available. For information about accommodations for this and other courses, please visit the [DSS](#) page at the DVC website. If approved for accommodations, DSS will provide you with an accommodation plan. Please share your accommodation plan with me and discuss your approved accommodations as early in my class as possible. If your accommodation needs are not being met, please inform me and Disability Support Services as soon as possible.

## **Equity and Inclusion.**

This class aims to be a safe and affirming learning space for all students, regardless of age, race, ethnicity, citizen status, gender, sex, sexual orientation, parental status, religion, ability, or socioeconomic status. As an instructor, I pledge to respect all students based upon these factors, including the use of preferred names and pronouns, and I encourage open communication. Students are welcome and encouraged to share any/all viewpoints relevant to course material.

## **Academic Integrity.**

Academic dishonesty, including cheating and plagiarism, is a violation of the DVC Student Code of Conduct and will not be tolerated. This includes giving or receiving assistance on any assignment, quiz, or exam unless specifically authorized by your instructor. These actions are grounds for academic consequences, such as receiving no credit for the assignment or a reduced grade in the class, and disciplinary consequences from the college. If you have any questions about academic dishonesty or plagiarism, please see the [DVC Academic Integrity Policy](#). Unless otherwise specified, your work in this class is individual work; helping or being helped on assessments is cheating; the penalty is up to a zero on the test for one offense, and an F in the class for a second offense.

## **Covid.**

Please review the district COVID-19 Safety Guidelines before attending class.

<https://www.dvc.edu/about/safety/health-advisories/covid-19-safety-faq.html>

All students are required to wear a mask that covers both the nose and mouth while attending class. If a student forgets to bring or wear a mask, they will be able to get a standard surgical paper mask in labs, classrooms, division deans' offices and the Student Services Center. If a student refuses to comply with mask requirements, they will be required to immediately leave the class and may be subject to the college's code of conduct.

You are required to complete a self-assessment prior to coming to campus each day. Please review [the student self-assessment checklist](#).

You are not permitted to enter the campus if:

- you are experiencing any COVID-19 symptoms. You must leave the classroom if you develop symptoms while on campus or

- you have been in close contact with, or otherwise exposed to, a known or suspected case of COVID-19 and you should not come to campus until you have been cleared to do so by a medical professional (negative test result) following current guidance from the CDC.

You should contact me immediately if you need to miss class for an extended period of time due to COVID symptoms or exposure and online instructional materials will be made available thru Canvas. You will be able to complete course material online during your absence and will not be penalized for missing class.

Class meets weekly as scheduled. Based on changing COVID-19 guidelines, additional social distancing practices may be implemented, including possible conversion to partially or 100% online.

### **Tentative Schedule.**

Generally, we will follow our book listed above.

<b>Week:</b>	<b>Topic:</b>	<b>Reading:</b>
8/23-8/27	Vectors, vector functions, and parametric equations	Chapter 13
8/30-9/3	Differentiability and differentiation	14.1 – 14.
9/6-9/10	Chain rule, gradient	14.5, 14.6
9/13-9/17	Min/max problems	14.7
9/20-9/24	Lagrange multipliers	14.8
9/27-10/1	<b>Exam 1</b>	
10/4-10/8	Double integrals	15.1 – 15.4
10/11-10/15	Applications, surface area, triple integrals	15.4, 15.5, 15.6
10/18-10/22	Triple integrals and change of variables	15.7 – 15.9
10/25-10/29	<b>Exam 2</b>	
11/1-11/5	Vector fields, curl and divergence	16.1, 16.5
11/8-11/12	Line integrals, fundamental theorem for line integrals	16.2, 16.3
11/15-11/19	Green's theorem, surface integrals	16.4, 16.6, 16.7
11/22-11/26	Stokes' theorem (note Thanksgiving holiday)	16.8
11/29-12/3	Divergence Theorem, summary of vector calc	16.9
12/6-12/10	Review and <b>Final Exam (Thursday, 12/9)</b>	

### **Deadlines.**

September 3<sup>rd</sup>: Last day to drop and be eligible for refund of fees.

September 6<sup>th</sup>: Last day to add, or drop without a “W”

September 23<sup>rd</sup>: Last day to request P/NP

November 12<sup>th</sup>: Last day to withdraw with a “W”

