Ventura College Sabbatical Leave Proposal
Data Science Project for Fall 2025 and Spring 2026

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Project: To create a Data Science Certificate program at Ventura College.

Background of the Project, Part 1: What data science is and the value of data science.
Data science essentially is a combination of statistics and computer science. While data science relies heavily on statistics and coding, being a good data scientist also requires a wide range of other related skills and knowledge such as machine learning algorithms (statistical models), how to analyze data, mathematics, critical thinking, and presenting.

Data science and artificial intelligence have become increasingly important in recent decades. We use technology created by data scientists all the time. For example, the Netflix algorithm that gives personal, individualized recommendations to users was created by data scientists. How valuable are these statistical models? The Netflix Prize in 2009 may give us some idea. In 2009, Netflix offered $1,000,000.00 to any person or group that could come up with a statistical model that increased the predictive accuracy by at least 10% over Netflix's then current algorithm. Within 24 hours, several people found models that increased the predictive accuracy, but not quite by 10%. On September 21, 2009, the grand prize of $1,000,000.00 was awarded to the BellKor's Pragmatic Chaos team which beat Netflix's own algorithm for predicting ratings by 10.06%. How much was this knowledge truly worth to Netflix if they paid $1,000,000 to get it?

This type of technology is ubiquitous and most of us use it all the time. We use this technology every time we give a thumbs up on Meta (formerly Facebook), look at or buy a product on Amazon, watch a video on YouTube, or do a search in Google. Most of us are using this technology on a daily basis. Face recognition, voice recognition, and things of that nature are designed by data scientists. Data scientists are utilized in virtually every field including major industries such as business, marketing, insurance, sports, military, medicine, and genomics.

The field of data science offers tremendous job opportunities to those qualified. "*Employment of data scientists is projected to grow 36 percent from 2023 to 2033, much faster than the average for all occupations.*" (United States Bureau of Labor Statistics)

Data science growth is now rapidly accelerating. With more computing power than ever before, and with the advances of Artificial Intelligence (such as ChatGPT coming out in 2023), there is more growth and opportunity than ever before in this cutting-edge field. Students who have the educational background and skills for data science will be able to get good, high paying jobs that are in demand.

Background of the Project, Part 2: Work that has been done up to this point.
In April 2024, I did a presentation on data science to the math department regarding creating a Data Science certificate program at Ventura College. The enthusiasm and support were overwhelming and 6 math faculty expressed interest in helping develop and support the program.

Since then, I have had several meetings discussing this project with Nenagh Brown, the Dean of the Gateway Division. Nenagh tells me that this is a project that she wants Ventura College to have. Additionally, this was something that the Vice President of Academic Affairs wanted to have when Nenagh started working here. I have also had a meeting regarding data science with our computer science faculty and with Debbie Newcombe, the Dean of Career Education, who wants Ventura College to have a Data Science certificate program as well. In summary, this Data Science certificate program has overwhelming support from my department, my dean (Gateway division), and the Dean of Career Education.

This last Summer, I signed up to complete IBM's Data Science Professional Certificate program that they offer on Coursera's platform (coursera.org). It is a 12-course certificate and I have completed 3 courses and most of the way through the 4th course. An outline of this certificate program can be found later in this proposal under the **Components of the Sabbatical Project** section. I made a lot more progress over the Summer, but I am still slowly working through the courses this Fall. One of the challenges of creating the data science certificate program is making sure that the educators themselves have the knowledge to teach data science classes adequately to students. Although I have a Master's degree in statistics, and I do think statistics is the best educational base to have for this type of project, I also thought that I needed to refresh and sharpen my knowledge on the latest statistical models, Python coding, SQL coding, and the field of data science itself and all it entails. I had been busy being a mathematics teacher teaching traditional math courses for many years rather than keeping these particular data science skills fresh and sharp, which is understandable. I strongly believe taking these courses now will greatly help me benefit this project and I have already learned a lot and sharpened my own skills from the data science coursework that I have completed. The certificate program recently added on an AI course, which I am looking forward to taking as well. Data science, which involves AI, is a rapidly evolving field and I think it's good to try and keep up with the latest innovations.

In Spring 2025, I plan on continuing the work and doing research on the core courses for the Data Science certificate program. During this time, I will be meeting with and coordinating with Nenagh Brown.

Purpose of Sabbatical Project
The project proposes to create a Data Science certificate program for Ventura College. This certificate will consist of 9-10 units of core courses coming from mathematics and computer science, and 6-7 units of elective courses from a student chosen emphasis (these courses would come from mathematics, computer science, and could also come from business, social science, and other departments who wish to participate).

I believe that it is important that we prepare our students for the future world they are going to be living in. We are currently on the cutting edge of a technological AI revolution. I believe this Data Science certificate program is an excellent way to prepare our Ventura College students for the future and give them a strong position in the job market.

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Components of the Sabbatical Project

Fall 2025:

1.   Collaborate within my department, with other departments, and with other colleges.

2.   Write curriculum for Data Science Certificate program and submit it before October 2025.

3.   Finish IBM's Data Science Professional Certificate program (outlined in the table below).

Course	Title: IBM Data Science Professional Certificate	Hours (170 total)	Status
1	What is Data Science	11	**Completed**
2	Tools for Data Science	18	**Completed**
3	Data Science Methodology	6	**Completed**
4	Python for Data Science, AI, & Development	25	**In Progress**
5	Python Project for Data Science	8	Not Started
6	Databases and SQL for Data Science with Python	20	Not Started
7	Data Analysis with Python	15	Not Started
8	Data Visualization with Python	20	Not Started
9	Machine Learning with Python	13	Not Started
10	Applied Data Science Capstone	13	Not Started
11	Generative AI: Elevate Your Data Science	12	Not Started
12	Data Science Career Guide and Interview Preparation	9	Not Started

Spring 2026:

4.   Prepare to teach the Data Science classes.

5.   Get a more advanced Data Science Certificate such as with Google Business Intelligence, IBM Machine Learning, or other.

6.   Prepare to teach our specific Data Science Certificate courses:
        A.   Canvas Modules
        B.   Choose resources such as texts and online resources.
        C.   Prepare assignments and data analysis projects.
        D.   Build contacts with local companies hiring data scientists.

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Value of the Sabbatical Project to Ventura College, and the VCCCD (District)
Most fields evolve, and statistics and data science are no exceptions. Creating this program will require growth for individual teachers who are up for the challenge and want to participate in the development, growth, and teaching of the program courses. It will help Ventura College keep up with the times technologically. It would position Ventura College to have the opportunity to form partnerships with employers who are looking for entry level data scientists and other adjacent type positions such as data analysts, market analysts, and things of that nature. I believe this will help Ventura College be a more well-rounded institution that offers more opportunity to students.

Once Ventura College has established a Data Science Certificate program, VCCCD will have two colleges with a Data Science Certificate program instead of only one. In addition, Ventura College will have its own Data Science Certificate program. Moorpark created their Data Science certificate program recently. I have heard that students in their program are getting hired for high paying jobs. I would like our Ventura College students to have that same opportunity. Our Data Science certificate program will vary from Moorpark's, and this will increase the diversity of what VCCCD is offering in terms of a Data Science certificate program.

Value of Sabbatical Project to Students
Data science is an exploding field with an incredible projected job growth rate of 36% until 2033 (US Bureau of Labor Statistics), which is much higher than the average job growth rate of all other industries. Technology is changing our world and shifting our job markets. Our Data Science program helps prepare our students for opportunities in the emerging job market. These data science jobs are in demand and high paying. According to the job search site Indeed.com, the average income for data scientists in California is $142,693 (Indeed.com).

I also believe a Data Science certificate program will improve equity overall in a meaningful way as Ventura College has a high percentage of Hispanic students (65.3%) and that percentage is on an increasing trend. In addition, Ventura College students (on average) do not typically have the same opportunities that students who are more socioeconomically advantaged have. For these reasons, a Ventura College data science program would close opportunity gaps and increase equity. I believe that Ventura College students deserve this valuable opportunity.

In addition, these courses will be accredited such that if students want to get higher levels of education in data science, engineering, statistics, or computer science, they will count toward that and get the students closer to their goal.

Value of the Sabbatical Project to Instructor
The Sabbatical project will allow me to complete an ongoing project to achieve the following: Write curriculum for Data Science Certificate program and submit it before October 2025; this would include both core courses and elective courses. It will also allow me to prepare to teach the Data Science classes. This preparation would include finishing IBM's Data Science Professional Certificate program, taking more advanced courses, and preparing to teach the specific data science courses in our program at Ventura College.

Much of the work that I have already done I did during off contract hours (weekends and Summer). This would include the work it took to promote the data science project, attend meetings, make presentations,

and complete the 3 data science courses I have taken thus far, among other things. The amount of time I need to finish this project is way beyond what I can accomplish during my college service time or with off contract hours while I have a teaching obligation. This sabbatical will allow me the time to create Ventura College's very own Data Science Certificate program which will have lasting benefits for students, instructors, Ventura College, and the VCCCD.

On a more personal note, I believe I have matured a lot during my 10 years teaching at Ventura College, both as a person and as a teacher. I think that having a year away from teaching would benefit me both as a person and as a teacher as well. I plan on travelling and exploring different cultures and expanding my perspective as a human being. I think that part of that is just being away from teaching, as I have been continually teaching for the last 12 years, immediately after 6 consecutive years of being a full-time student while working part time. A change of pace could do me good. I believe the change of pace and change of scene during Sabbatical will allow me to restore and invigorate myself and I think this will have a positive effect on my teaching and my effectiveness in working for Ventura College upon my return.

Thank you for your consideration.

Sincerely,

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