

From: noreply@wsu.edu
To: [curriculum.submit](#)
Subject: 776098 Data Analytics Requirements New : Add Graduate Certificate
Date: Monday, February 5, 2024 9:20:56 AM
Attachments: [Form.html](#)
[Data Analytics Grad Certificates Proposal Rationale 2.5.24.docx](#)

Christina Myers has submitted a request for a major curricular change. His/her email address is: christina.myers@wsu.edu.

Request (from selection dropdown): Add Graduate Certificate

Department: Data Analytics

New Graduate Certificate: Responsible Data Science and Analytics

CIP Code: 30.7101

Requested Effective Date: Fall 2024

Campus:

Dean: Swindell, Samantha - Assoc Dean - CAS

Chair: Dascupta, Nairanjana (Jan) – Chair – Data Analytics

Catalog Subcommittee
Approval Date

AAC, PHSC, or GSC
Approval Date

Faculty Senate
Approval Date

From: [Dasgupta, Nairanjana \(Jan\)](#)
To: [curriculum.submit](#); [Swindell, Samantha](#)
Subject: RE: 776098 Data Analytics Requirements New : Add Graduate Certificate
Date: Monday, February 5, 2024 10:05:08 AM

I approve this proposal in its current form.

Nairanjana/Jan

Nairanjana (Jan) Dasgupta (she/her)
Boeing Distinguished Professor
Department of Math and Stat
Director of Data Analytics
Data Science Fellow
Washington State University
Pullman, WA 99164-3113

From: curriculum.submit@wsu.edu <curriculum.submit@wsu.edu>
Sent: Monday, February 5, 2024 9:14 AM
To: Dasgupta, Nairanjana (Jan) <dasgupta@wsu.edu>; Swindell, Samantha <sswindell@wsu.edu>
Subject: 776098 Data Analytics Requirements New : Add Graduate Certificate

Dasgupta, Nairanjana (Jan) – Chair – Data Analytics,

Swindell, Samantha - Assoc Dean - CAS,

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Both Chair and Dean approval is required to complete the submission process. Please indicate that you have reviewed the proposal by highlighting one of the statements below and **reply all** to this email. (curriculum.submit@wsu.edu.) [Details of major change requested can be found in the attached supplemental documentation]

From: [Swindell, Samantha](#)
To: [curriculum.submit](#); [Dasgupta, Nairanjana \(Jan\)](#)
Subject: RE: 776098 Data Analytics Requirements New : Add Graduate Certificate
Date: Wednesday, February 7, 2024 2:08:49 PM
Attachments: [image001.png](#)

1. I approve this proposal in its current form.



Samantha Swindell, PhD (she/her/hers)
Associate Dean, Undergraduate Studies
Professor, career track
Department of Psychology
College of Arts & Sciences
Washington State University
Office: 509-335-3715
Email: sswindell@wsu.edu

Washington State University Pullman is located on the ceded lands of the Nimíipuu (Nez Perce) Tribe and the traditional homeland of the Palus Band of Indians. We acknowledge their presence here since time immemorial and recognize their continuing connection to the land, to the water, and to their ancestors.

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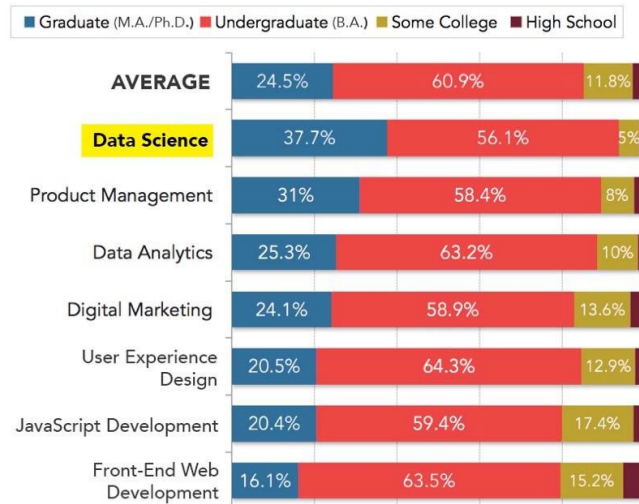
Campus:

Rationale Statement for creating Data Analytics Graduate Certificates

Certificate Name: Responsible Data Science and Analytics

Data Analytics/Science is one of the fastest employment areas in Washington state, and since we launched the bachelor's degree in 2017. We grew from 10 students to the current number of 288 students in less than 5 years. For the few years now our students, community and industry partners have been seeking graduate options. The reason for this is while there are undergraduate degrees around the country and our current alumni are getting hired, the overall perception for data analytics/science is the need for graduate training. This graph shows the worldwide employment data in some fields, and it shows that Data Science and Data Analytics there is a definite need for Graduate degrees.

Education Level of General Assembly Students by Course



Source: General Assembly part-time student data (09/2016-01/2017)
*Average = the courses listed above

The US Bureau of Labor Statistics shows data science careers growing at 35% annually and providing a median pay of \$113,500 per year. Additionally, *Lightcast* analytics shows that in Washington state alone there were 73,000 unique postings for employees with “data analysis” as a key skill in the last year. The salaries with graduate training are much higher (\$120-\$180). At WSU, offering a graduate degree has always been an intention since the formation of the Program of Data Analytics. However, we were held back due to budget cuts and crisis over the years.

Background History: In summer of 2022 we developed three grad level DATA classes: DATA 501 (a primer which is a mix of CS+Stat+Math), DATA 520 (Comm in Data Science) and DATA 521 (Responsible Data Science). These three classes have gone through faculty senate and exist on the catalogue.

Potential now: The discussion has come up again and this time the idea was to put together a Grad Certificate and offer it through the global campus initially and then in time over the other campuses and finally work towards a PhD in this area. Our focus would be “**Responsible Data Science and Analytics**” where we talk on basics of data analysis with a *special emphasis on data governance, ethics, communication*. The idea is we would package the classes: DATA 501, DATA 520, DATA 521 and along with DATA 301, 302 and 303 (our one credit hour modules on R, Python and SQL respectively) and put a

yearlong credit bearing certificate together. The topic of ethics and responsible use of data is our niche area and WSU could really make a difference in this space as the issues around algorithmic bias in data and AI becomes an area that more industry and academia are interested in.

Market need: Folks from PNNL and other Industry partners have indicated they'd encourage this as Continuing Education for their employees, especially if it is credit bearing. For this effort the Office of Research has made available \$15K in funds for class development on to the Canvas space for delivery for DATA 501, 520 and 521. We do have a faculty buy-in for developing these classes this summer from the Data Analytics, Faculty Advisory Board.

The program in Data Analytics is currently hiring 2 faculty lines, one in Pullman and one in Global campus to meet the needs of a growing program. Hence, these courses can be offered without significant impact on the current faculty.

Classes for the Graduate Certificate with description based on the current catalog: (9-12 credits)

501 Data Science Primer 3 (2-2) Foundational methods, techniques, and knowledge in the field of Data Science, including an introduction to software, coding, and documentation habits.

520 Communication with Data 1 May be repeated for credit; cumulative maximum 3 credits. Aspects of communication in data science are addressed in successive enrollments: verbal communication in a meeting or to an audience; technical writing and the peer review process; and storytelling with data.

521 Responsible Data Science 3 (2-2) The intersection of quantitative analysis with ethical considerations; topics in the context of AI and machine learning.

The following three 1 credit classes are as needed by the students.

301 Introduction to R 1 Hands-on knowledge and skills for programming, handling different types of data, data cleaning, and visualization; excellent foundation for courses or projects that involve coding in R. S, F grading.

302 Introduction to Python 1 Hands-on knowledge and skills for working with real data and the Python programming language; an excellent foundation for later coursework in the Data Analytics major. S, F grading.

303 Introduction to SQL – The Structured Query Language 1 Hands-on knowledge and skills for basic-to-advanced aspects of the SQL system. S, F grading.

Catalogue Description:

As data-based decision automated decision making takes center stage, we must start thinking about responsible decision making understanding the nuances of data governance, ethics and communication. This 9-12 (variable) credit Graduate Certificate discusses the foundations of data science and analytics and delves into issues around these topics. The student must successfully complete DATA 501, 520 and 521. Depending on their background the students could also take DATA 301, 302 and 303 to learn some essentials around some of the common software used currently in the field.