



P14008
Data Analytics (Minor)

New

Requestor: Breeann Flesch
Submitted: 2021-04-12 16:10:27
Submitting as: Faculty Member or APA

The queue for this request is:

- Division Chair
- Division Curriculum/Graduate Chair
- Curriculum Committee
- Faculty Senate
- Dean (LAS)
- Provost
- President
- External

Request for a: Program
Level Undergraduate
Type of Request: New (course, program, focus/concentration, or temporary course)
Will this be offered within an existing division or department? Yes
Type of program Minor
Division Computer Science
Is this curricular change driven by assessment data you have collected? No
Summary/Rationale for proposal

We are proposing the establishment of Bachelor of Science (BS) and Bachelor of Applied Science (BAS) degrees in Data Analytics at Western Oregon University as well as a minor in Data Analytics. Data analytics and data science are constantly evolving fields and becoming essential to domains such as business, e-commerce, finance, government, health-care, science, telecommunications and more. As more and more domains rely on collecting and analyzing data, the demand for data analysts and data scientists will continue to grow. This major is designed to prepare graduates to meet his growing need.

WOU's data analytics programs are interdisciplinary and built on a foundation of Mathematics, where students will develop their skills in quantitative literacy, logical reasoning, statistics and linear algebra. Also foundational to this degree is coding skills, which will be developed through Computer Science courses, and technological skills, which will be developed through Information Systems courses. These skills will be further developed and put into the framework of the data analytics field with Data Analytics courses, including a high-impact capstone experience.

Anticipated start date Fall 2022
Where will the program be delivered? WOU Campus (in-person or online), WOU Salem
How will the courses be offered? Face-to-face, Hybrid, Online asynchronous, Online synchronous
Proposed Classification of Instructional Programs (CIP) number. 30.7101 Data Analytics, General.
Title of new program, requirement, focus, or concentration Data Analytics
Faculty Listing

Professors: Breeann Flesch, Jie Liu, Becka Morgan, Scot Morse, Cheryl Beaver, Scott Beaver, Hamid Behmard, Laurie Burton

Associate professors: Thaddeus Shannon, Matthew Ciancetta, Matthew Nabity

Assistant professor: Lucas Cordova, Ben Cot?, Leanne Merrill

Mission, Learning Outcomes, Etc.

The Data Analytics program prepares students to thrive in the constantly evolving field of working with big data. The field is interdisciplinary by nature and is built on a foundation of Mathematics, Computer Science, Information Systems and Data Analytics courses. This program emphasizes the applied practice of data analytics techniques for solving problems in the real world.

1. Use relevant technology for the analysis of large, complex, or messy data sets to design, implement, and evaluate analytics-based solutions.
2. Use quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality.
3. Collect, analyze and assess evidence to reach informed conclusions and judgments.

Description

- DATA 101 Foundations of Data Analytics (4 credits)
- MTH 243 Introduction to Probability and Statistics (4 credits)
- MTH 244 Introduction to Probability and Statistics II (4 credits) OR BA 367 Regression Analysis (3 credits)
- CS 161 Computer Science I (4 credits) OR CS 133 Introduction to Python Programming (4 credits)
- DATA 432 Introduction to Data Analytics (4 credits)
- DATA 434 Data Visualization (4 credits)
- One upper-division CS, MTH, DATA or IS elective planned with the help of a minor advisor (4 credits)

Total Credits 27-28 credits

Catalog ID:

List closely related programs at WOU or other Oregon colleges and universities and the way in which this program complements other similar programs in other Oregon institutions and other related programs at WOU.

Though the demand for professionals who can work with big data shows no signs of decreasing, it is important to investigate the viability of a proposed major in data analytics. One of the first questions is whether or not a regional liberal arts university is suited to offer such a major or minor. Looking at comparator institutions listed in the faculty senate archives, we see several variations on the theme of data analytics and data science. Nearly every one of WOU's comparators has some minor or major connected to big data. Based on the market need and student demand, Data Analytics is quickly becoming a program, like English, Psychology, and Math that are needed at all regional public universities.

With such a growing need for data analysts, data scientists, and professionals that can work with data, the state of Oregon needs multiple programs. As WOU is a liberal arts institution, and not an engineering school, we are poised to attract students that may not otherwise see themselves in this degree, including traditional underrepresented folks in STEM.

Programs affected/consulted

The following collaborations are about both the major and minor in Data Analytics.

Computer Science / Information Systems:

This was originally discussed in the the division in early fall, about the idea of moving forward with a stand-alone major in Data Analytics. The rough draft proposal as developed over winter break and brought to the division at the January 5, 2021 Division meeting. The division had a separate meeting on January 28, 2021 at 3:00 pm to discuss faculty feedback on the rough draft. The feedback was then incorporated into the proposal. At the February Division meeting, updates were provided based on the incorporated feedback and conversations with stakeholders. The proposal came to the CSD at the March division meeting as new business and a further opportunity to feedback (no more was added at that time). The full (including details on the MTH courses) proposal came the CSD at the April meeting as old business and was voted to approve unanimously.

Mathematics:

On January 19, 2021, we emailed the rough draft of the proposal to the Mathematics department for review. The draft included the request for the Mathematics Department to develop two new courses and use three existing MTH courses. I then joined the Mathematics Department meeting on January 22, 2021 to discuss the proposal and get feedback. The feedback was positive, and from there the Mathematics Department formed a subcommittee to develop the two new courses and determine FTE needs for the HECC

paperwork. On March 22, 2021 the chair of the subcommittee, Leanne Merrill, provided the details of the new courses as well as FTE needs. The two new MTH courses will be entered into the portal from the Mathematics Department, while the rest of the proposal will be entered by the Computer Science Division.

Business:

After the CSD approved moving forward with the rough draft at the January 5th, 2021 meeting, we reached out to the Business and Economics Division for feedback. We met with leadership (Hamid, Zenon & Bojan) from that division on January 19, 2021 at 2:00 pm. We agreed that BA 367 is a great option for folks seeking this degree, and that there is capacity in the class. We also agreed that there are no other BA classes that would fit as the currently exist (although some skills overlap). Lastly, we discussed the development of the future Sports Management major and how some Data Analytics classes would be a great fit for the Sports Analytics concentration.

Briefly describe how the proposed program aligns with WOU's strategic priorities

Western Oregon University's mission is "To create lasting opportunities for student success through transformative education and personalized support." WOU is distinguished by its student-centeredness, a personalized approach to education, a strong liberal education and the high value it places on its role as an access institution in Oregon. Our strategic plan calls for the university to:

- ? Strengthen programs that support graduates' career, professional, and graduate school preparedness (I.1.3)
- ? Provide intentional and effective paths to graduation within 180 credits (I.2.1)
- ? Promote academic array that provides distinctive, high-quality programs (II.4.1)
- ? Improve access to coursework for degrees, programs and certificates (I.2.3)
- ? Promote interdisciplinary courses and degree programs that support collaborative and multidimensional educational experiences and pathways (II.1.4)

The proposed BS and BAS degrees in Data Analytics supports WOU's mission, values, and strategic plan. In addition to providing a 180-credit educational pathway (between program and other degree requirements), it is deeply interdisciplinary and relevant in a world where big data is pervasive and increasingly used to solve important real world problems. Combining data analytics skills with the fundamental components of a liberal arts degree such as communication, quantitative literacy skills, and critical thinking, this program will prepare students to immediately enter into a range of careers upon graduation.

Briefly describe how the proposed program meets regional or statewide needs and enhances the state's capacity to improve educational attainment in the region and state

One of the state's goals is to increase the number of students earning 4-year degrees. Creating a clear pathway to a career-focused baccalaureate degree will help achieve that goal. Likewise, one of the stated educational goals for the Oregon STEM Investment Council, established in 2013 by HB 2636, is to double the number of students who earn a postsecondary degree requiring proficiency in science, technology, engineering, or mathematics. This interdisciplinary degree is a combination of science, technology and mathematics.

What is the plan to recruit students to this proposed new program? Have you established a marketing plan to promote this new program and informed MarCom? Please briefly describe the plan.

While we haven't developed a marketing plan as of yet, we plan to develop one next year since the rollout isn't until Fall 2022.

What is the budget source for the plan to attract new students to this proposed new program?

Administration has agreed to provide funding to help attract student to both the major and the minor in Data Analytics.

Faculty and Facilities Needed (for Dean review only)

The following FTE calculations are not in addition to the FTE needs of adding the major, but rather are the subset of additional FTE requirements that would be needed for the minor. In other words, if the Data Analytics Major is added then there would be no additional FTE needed for the minor.

For the Mathematics Department (the additional sections of MTH 243 will only be needed if existing courses are full):

2022-2023: 4 credits, one additional section of MTH 243

2023-2024: 8 credits, one additional section of MTH 243 and MTH 244

2024-2025: 8 credits, one additional section of MTH 243 and MTH 244
 2025-2026: 8 credits, one additional section of MTH 243 and MTH 244
 2026-2027: 8 credits, one additional section of MTH 243 and MTH 244

For the Computer Science Division:

Almost all of the courses in this program are already offered by the CSD. The new courses, DATA 101, will be offered with reallocation of FTE, requiring no additional FTE for the first five years.

Notes/Comments

This proposal is coming from two different divisions: the Computer Science Division and the Mathematics Department in the Natural Science & Mathematics Division.

Supporting Documents

Thumbnail	Name	Size			Actions
Related Courses:					
https://wou.edu/facultysenate/curriculum/view/request?id=14014	DATA 101 Foundations of Data Analytics	New: General Education Course Foundational Skills (Critical Thinking)	P14010 P14003 P14008	Foundational Skills Critical Thinking	Breeann Flesch Computer Science: na Faculty Senate: Sent: 2021-05-19 08:22:06. View
https://wou.edu/facultysenate/curriculum/view/request?id=14017	MTH 244 Introduction to Probability and Statistics II	New	P14010 P14003 P14008		Leanne Merrill Natural Sciences & Mathematics Faculty Senate: Sent: 2021-05-18 18:10:47. View
https://wou.edu/facultysenate/curriculum/view/request?id=14019	IS 432 Introduction to Data Analytics New:	Modify: Prefix, Prerequisites	P14010 P14003 P14008		Breeann Flesch Computer Science: na Faculty Senate: Sent: 2021-05-18 18:10:47. View
https://wou.edu/facultysenate/curriculum/view/request?id=14020	IS 434 Data Visualization New:	Modify: Prefix, Prerequisites	P14010 P14003 P14008		Breeann Flesch Computer Science: na Faculty Senate: Sent: 2021-05-18 18:10:47. View

Division chair decision:

✓
 Yes by Breeann Flesch (2021-04-16 15:29:49)

Comments:

Division curriculum chair decision:

✓
 Yes by Thaddeus Shannon (2021-04-16 15:54:30)

Comments:

Curriculum Committee Decision:

✓
 Yes by Laurie Burton (2021-05-18 18:09:47)

Comments:

Senate Decision: Pending:
 Sent to Leigh Graziano (graziano@wou.edu), on: 2021-05-18 18:09:47

LAS Dean Decision: Pending: Kathy Cassity (cassityk@wou.edu),

Provost/VPAA Decision: Pending: Rob Winningham (winninr@wou.edu),

President Decision: Pending: Rex Fuller (rfuller@wou.edu),

Entered into appropriate systems by registrar's office: Pending: Amy Clark (clarkaj@wou.edu),

Entered into catalog: Pending: (),