Three-Year Check-In for New Programs

Program Name

Analytics for Decision Making Capstone Certificate

Term of First Enrollments

Spring 2019

Check-In Completed By

Jenny Greiber/Kristin Eschenfelder

Date Completed:

February 28 2022

Academic Quality and Student Success

1. Provide an update on any changes to the program’s curriculum and learning outcomes. Include a description of the program’s typical course modalities (face-to-face, online, asynchronous discussion, team or individual assignments) and if courses have evolved based on faculty or student feedback.

The Analytics for Decision Making Capstone Certificate program is designed for non-traditional students who are working professionals. The students in the program are looking to build their skill set, earn a certificate or enroll in a graduate course prior to committing to a full master’s degree program. The certificate consists of three courses:

LIS 705 - Introduction to Analytics for Decision Making (3 credits) Introduces key stages in the processes of gathering and analyzing data for decision making, including tasks, methods, and tools used at each stage. Topics include developing the research question from organizational goals, choosing appropriate data collection methods, sampling, basics of measurement and question design, managing and visualizing data, descriptive statistics and basic inferential statistics such as correlations, regressions, and ANOVA

LIS 706 - Data Mining Planning and Management (3 credits; preqeq 705) Introduces key concepts in data visualization and communication including how and why visualization can be an effective tool for summarizing, analyzing and communicating
about data, and limitations and challenges of using visualization techniques. Students will use contemporary software to develop visualization dashboards and presentations as well as plan appropriate types of visualization(s) based on source data, audience, and goals, evaluate visualizations for effectiveness and bias.

**LIS 707 - Data Visualization for Communication for Decision Making** (3 credits)
Prepares students to plan, manage and assess a data mining project in light of organizational strategic goals. Introduces stages of a data mining project, data mining project evaluation frameworks, and principles of data ethics related to data mining. Learn and apply introductory data mining tools and techniques for data clustering, dividing data into classes, making predictions and identifying networks.

The ADM certificate was designed to be “stackable” with the iSchool’s other graduate programs such that credits completed in the ADM certificate can be applied to a masters degree when the student is accepted into that degree program. One student in the program has enrolled in master degree programs at the iSchool after completing this program.

All the courses in the program are taught online with a weekly synchronous session. The evolution of this program was based on faculty and student feedback. Each course deploys a mid-semester survey to students to gather formative feedback, which is in addition to end of the semester course evaluations. The program’s learning outcomes have remained the same.

**Evolutions:**

Student demand to finish the program faster led the iSchool to add a summer course. Currently the program starts each spring, However, sometimes the introductory class (LIS 705) class is also offered in the fall because of larger course demand from other programs, and some certificate students do choose to begin in the fall.

Originally, the program was conceived of students taking the courses in the order 705, 706 then 707. But the sequence of courses changed based on student feedback, instructor availability, and demand for the courses from other programs. Now students must take 705 before 706, but they can take 707 Visualization at any time. Due to use of the 707 Visualization class by the Design & Innovation degree, and interest in 707 from students in the other iSchool 131 programs, the prereq of 705 was removed from 707.

Originally the program envisioned students beginning the program in a cohort and moving through coursework together. This was not realized because of a) student demand for more flexibility in starting (fall or spring), b) COVID pandemic contributed to student enrollment pauses and drop outs, c) high demand for access to the online classes from students in other programs leading to a mix of students in each class d) lower enrollments by certificate students require a mixing of students in the class in order to make the class offering economically feasible.

The program originally envisioned that students would use data from their workplace and continue working with that data across all three courses. In reality we have found that it is difficult for students to find and use data from their workplace that meets criteria needed for
instructional goals (e.g., sufficient size, textual and numeric) and which is sharable with the instructor and peers. Instead, most students tend to use public data sets to complete their projects.

The design for 705, the introductory class, has struggled with a bimodal student body. One part of the student body has little or no statistical background and seeks to begin at a very introductory level. Another part of the student population has some prior knowledge of statistics and wishes to jump quickly to more advanced topics. This is less of an issue in the Data Visualization and Data Mining classes.

LIS 705 is currently cross-listed with the Department of Communication Arts because when the certificate was planned in 2018, Comm Arts was interested in potentially recruiting students for the program and fielding an instructor for the program. Since that time, priorities have shifted and Comm Arts has not sought to participate in the ADM certificate. The iSchool will invite Comm Arts to de cross-list the course so as to avoid student confusion.

2. Please reflect on the diversity of your student population using the data provided by the Graduate School. What efforts have you made to recruit a diverse student population, and what inclusion efforts have you made to ensure the success of the diverse population of students in the program? What areas of opportunity exist for future recruitment of diverse populations? (See here for Institutional statement and working definition of diversity.)

The ADM program student body tends to be older and fully employed. More than half the students have been female (21 female/13 male). Of the enrolled students, 4 identified themselves as from diverse backgrounds.

To encourage a diverse student body, the ADM certificate coordinator regularly offers scholarships to students.

Further efforts at diversity recruitment and retention have been stymied by COVID challenges and the need for more staffing for the program as Greiber’s responsibilities have expanded. The program coordinator has attended virtual conferences such as Grad School Fair, and the American Library Association Professional Conference.

3. The GFEC is interested to learn how departments balance faculty and staff teaching loads and responsibilities between new and existing programs. Discuss how the department or program is achieving balance, and what challenges supporting multiple programs may have created for teaching, student services, advising or funding. Also of interest is information on what if any assets are shared between programs, or additional benefits that have been realized.
The department has been able to balance responsibilities between this program and existing programs through utilizing short term instructors and hiring a 50% FTE certificate coordinator (shared with UX Certificate) for program administration. The three courses in the program were developed and taught by faculty in year one. After the first year, all three courses have been handed over to short term instructors to teach. The iSchool seeks to cultivate long-term relationships with high-quality short-term staff to ensure that good instructors return and teach the class multiple times. The commitment of the iSchool faculty is currently a 1 hour meeting each year to review the program course syllabi, program outcomes and recommend changes. The program coordinator handles all administrative services, budgeting, hiring STS and student services for the certificate program.

The department has realized benefits from the program:
1. The program has increased exposure for the department within UW-Madison and beyond.
2. It has created a stackable credential that can be applied to the iSchool’s masters degrees, or which may be completed independently.
3. The certificate courses expand the range of courses available to students in the iSchool’s graduate programs. Students in either the MA Library and Information Studies, or the MS-Information program can count the three courses toward their degrees.
4. As a result of the new programs, new faculty have been hired in the iSchool to expand research and courses on campus and in online programs.
5. Because the program hires STS instructors who work in industry, the program provides a means to increase relationships between the iSchool, industry, non profits, state government and campus offices that need an analytics workforce.

4. Please describe how your program has ongoing and broad faculty commitment, including governance, to ensure its continued success. If applicable, reflections from faculty and staff can be included here or as an appendix. Also consider if implementation of this program is supporting the Department and/or School/College’s current strategic goals.

Faculty/Instructional Involvement: Program faculty are involved in the ongoing stewardship of the program in two ways. Tenure track faculty who teach in relevant areas meet once a year to review curriculum and suggest changes to the ADM classes. The most recent meeting occurred in January and February in 2022. The short term staff that teach the online ADM courses communicate regularly with the program coordinator and suggest changes to their courses. Instructors have the freedom to make small changes to courses or assignments as the course instructor. More significant changes need to be approved by the coordinator and faculty program lead in order to ensure the three courses remain coordinated.

Administrative Leadership: The program began with a 50% program coordinator shared with User Experience Design certificate (Jenny Greiber). Greiber was subsequently hired as a 100% Program Coordinator in for the MS Information graduate degree. She has, for the short term, retained responsibility for the ADM (and UX) certificates. But, given the high growth rate of the MS Information degree, the iSchool must add additional support to assist with the certificate specific functions. The
program coordinator handles recruiting (with DCS), admissions, scholarship decisions, basic program advising.

Kristin Eschenfelder currently serves as the faculty administrative lead and works with Greiber in decision making about the certificate curriculum and any unusual student needs. She also leads the tenure track faculty input sessions.

The ADM certificate fits into the iSchool’s strategic goals in two ways:
1. The iSchool seeks to provide graduate education in the applied data analytics and data management area. The ADM certificate is part of the iSchool’s suite of educational offerings in this area. As mentioned elsewhere, the ADM courses are very popular across iSchool graduate programs.
2. The iSchool seeks to develop diverse revenue sources.

**Operations and Administration**

5. Explain through a brief narrative how the program has brought in NEW and ADDITIONAL students and met projected enrollment goals (required for non-pooled programs), and how overall enrollment in your related programs has remained steady (if relevant). Provide enrollment data from the past 3 years: See here for degrees & named options and here for capstone certificates. If unanticipated overlap with existing programs has resulted, discuss steps to mitigate the overlap.

Students in the ADM certificate program are non-traditional students who are employed full-time. Most students are working with data in their current position and are seeking to learn additional skills to aid them in being more effective in their current position. Students in the program work in a variety of fields including education, finance and sales.

Enrollments in ADM program:
Table 1 summarizes enrollments of ADM students by semester and class. The student numbers jump up and down because some students start and then step out/pause to rejoin later.

Table 1: Enrollments by Semester for ADM Certificate

<table>
<thead>
<tr>
<th>Semester of official ADM course offering (online only)</th>
<th>class (online only)</th>
<th># of ADM Students Enrolled</th>
<th>average # certificate students enrolled spring-fall period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2019</td>
<td>705</td>
<td>11</td>
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<tr>
<td>Summer 2019</td>
<td>n/a</td>
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<tr>
<td>Fall 2019</td>
<td>707</td>
<td>7</td>
<td>6</td>
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<tr>
<td>Spring 2020</td>
<td>705</td>
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<tr>
<td>Spring 2020</td>
<td>706</td>
<td>5</td>
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<td>Summer 2020</td>
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<td>Fall 2020</td>
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<td>Fall 2020</td>
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<tr>
<td>Spring 2021</td>
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<td>Summer 2021</td>
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<td>Spring 2022</td>
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Enrollment in the Analytics for Decision Making (ADM) program have not grown as expected and are under projected enrollments from the program proposal.

The COVID pandemic drastically reduced enrollments in the program. As the pandemic began in spring 2019, many in our working adult audience became too stressed to have time to do graduate level coursework. We had assumed that many employers would fund completion of the certificate, but resulting economic issues reduced employer funding.

In 2020, the iSchool worked with DCS to develop a contract with InStride to generate more enrollments; however, that relationship has not resulted in any new enrollments.

Non ADM student enrollments in courses:
Enrollment in the courses of the ADM program (LIS 705, 706, 707) by other program students has been healthy. The ADM courses are used by several degree programs, and the program has earned about $8700 a year in revenue from students from those programs. Other programs using the ADM courses include:
- the iSchool’s 131 online MA Library and Information Studies program,
- the iSchool’s 131 MS Information program (online and campus).
- Design & Innovation Masters degree (707 Visualization only)
- Other assorted program students from School of Business, Engineering and others

*Non-pooled programs should also provide the updated budget template populated with data from the past year and current year, along with projections for the next 3-5 years.
This updated budget template will also be reviewed by the Program Revenue Budget Committee.
(see attached updated budget template)

6. Funding Considerations

a. For traditional/pooled programs – How is the program successfully funding its students?
not applicable

b. For non-pooled programs – Refer to the updated budget template in addressing if the program has sufficient enrollment for sustainability. Discuss the current market outlook compared to the original marketing study and plans to grow or change the program to become sustainable.

The updated budget template shows that revenues produced from ADM students have not covered the instructional costs + administrative costs of the program. This is true even when accounting for revenue from external students (ADM courses tend to draw in an additional $8,000-$9,000 per year from students from external programs who take the courses). But, ADM courses are popular with students from other iSchool programs and they are well enrolled overall.

7. If the program admits international students, describe how program processes address length of stay visa issues, online course restrictions, and needing ESL services.

As a 100% online program, it is not attractive to international students. There have not been international students in the program since the inception of the program.

8. Are there any issues impacting the program’s long-term sustainability? If so, what support would you like to help you succeed?

Issues impacting the sustainability of the program include:
1. Lower enrollments and a competitive marketplace for analytics instruction and the expansion of noncredit “Bootcamp” options. Bootcamps are attractive to our current core audience of adult students seeking to “upskill.” Confusion between available programs on campus.
2. COVID created lower enrollments by decreasing employers willingness to pay for tuition benefits, increasing out adult students’ overall stress, and make work-family balance in home environment very difficult.
3. DCS budget limitations and a DCS decision to refocus on regional marketing limited the utility of DCS marketing programs in attracting program entrants.

The program needs to reconsider its focus on introductory analytics knowledge. While it serves most of its current audience well, that audience may choose bootcamp options instead.

Briefly explain the program’s learning outcomes assessment plan and discuss how you are or how you plan to evaluate student learning. Summarize any data collected to date showing evidence of student learning.

Student learning assessment is conducted by the iSchool as well as DCS. The iSchool evaluates the program’s learning outcomes via course evaluations, faculty interviews each semester as well as a final student exit interview. In addition, DCS conducts pre-program surveys, mid-program surveys and exit surveys.

DCS Exit Survey

The Division of Continuing Studies Exit Survey was fielded for students completing the program from fall 2018 through summer 2021. Ten data points were captured. It does not include students who stopped out or who are still completing the program.

The table below summarizes students’ perception of achievement of program learning outcomes. It shows that of the 10 respondents, most felt the program met the learning outcomes 2, 3 and 4 which focus on understanding a range of analysis techniques and tools, effectively communicating results and articulating the value and limitations of data analytics projects.

Learning outcome 1 was less strong with two respondents noting that the program “somewhat met” objectives related to formulating questions related to organizational goals, identifying sources of data and designing and implementing a plan to answer questions. The fact that this goal was noted as weaker makes sense because instructors have found that it is difficult for students to find and use data from their workplace that meets criteria needed for instructional goals (e.g., sufficient size, textual and numeric) and which is sharable with the instructor and peers. Instead, most students tend to use public data sets to complete their projects.
In terms of student satisfaction measures:

Program satisfaction: 90% were satisfied or very satisfied with the program. One was neutral.

Program expectations: 70% described the program as meeting or exceeding their expectations, but 30% reported that it fell short of expectations.

DCS asks existing students questions about the perceived utility of the program for workforce related goals. While one respondent was neutral or negative on all answers, the other 9 respondents (90%) answered positively for questions about:

- the value of the assignments and readings
- learning will help reach career goals
- feeling engaged in the program
- obtaining skills that will be valuable in the marketplace
- enrolling again

Areas which could be improved include helping students feel prepared to enter the workforce because of the program (50% agree, 40% neutral, 10% negative). These ranking could stem from the fact that most program participants were already working full time and intended to stay with their current employer. They had already entered the workforce.
Two interesting contrasting points of data are questions about encouraging others to apply and recommending the program. Data for encouraging others to apply to the program was higher than data for recommending the program.

- Encourage others to enroll (80% agree, 10% neutral, 10% negative)
- Recommend the program (60% agree, 30% neutral, 10% negative)

Data suggest a need for stronger program services:

Academic advising: 40% marked as satisfied, 20% marked as neutral, and 40% marked as not applicable (due to the lock step nature of the program)

Career advising: 10% marked satisfied, 30% neutral, 10% dissatisfied, and 50% marked not applicable (likely because they are already employed and seek to remain with their employer). Sources of career advice included the program manager, course instructors, classmates, alumni and the graduate school professional development office.