Three-Year Check-In for New Programs

The creation and maintenance of graduate programs and certificates represents significant resource commitments by faculty and staff. Given these investments, in 2014 the Graduate Faculty Executive Committee (GFEC) established a “check in” process for newly approved programs and certificates prior to their first formal university review (which occurs in the fifth year.) Through this “check-in,” the GFEC hopes program faculty and staff will assess the implementation of their new program and determine what mechanisms may be needed for sustained student success.

Progress reports will be included on GFEC agendas, and program representatives may be asked to attend GFEC if additional information is requested. In the interest of brevity, please keep responses to 300 words or less.

Program Name

MSc Cartography & GIS, Accelerated/Non-Thesis Option

Term of First Enrollments

Fall 2018

Check-In Completed By

Robert Roth (Director) and Brittney Krauss (Graduate Program Manager)

Date Completed

28 February 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 MSc Cartography & Geographic Information Systems (GIS), Accelerated/Non-Thesis option, is a revenue-generating, face-to-face program managed by the Geography Department GIS Professional Programs (GISPP). The Accelerated Masters named option is one of three named options for the Cartography & GIS degree offered by our department, along with our Thesis named option (the smallest program, with 3-4 students entering each year with funding) and the GIS Development named option (the largest program, offered completely online). The Accelerated Masters named option is the newest of these three options, launched in Fall 2018, but grew from the successful post-graduate GIS Certificate (16 credit) operated over two decades since Chancellor Ward’s certificate initiative in the 1990s.

The COVID-19 global pandemic required the majority of courses to meet virtually during AY2020-2021, prompting an overhaul in our online materials supplied through the Canvas learning management system that benefitted both the face-to-face and online programs.

There have been no formal changes to the program learning outcomes, however the five-year self-study of the GIS Development option recommended review of learning outcomes of all Cartography & GIS named options to harmonize across programs.

In Spring 2020, the Accelerated/Non-Thesis option was updated to include Geography 573 (Advanced Geocomputing & Geospatial Big Data Analysis) and Geography 675 (Special Topics in Cartography & GIS) as electives to integrate new courses derived from recent faculty hires.
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.)

According to the UW-Madison Graduate School Explorer, 43% of applicants for AY18-20 (AY21 is not yet available) were female and 47% of new enrollments were female (the only gender categories used in the Graduate School Explorer are male and female). 1% of applicants were from a targeted minority (domestic) and 37% of applicants were international. 0% of new enrollments were from a targeted minority (domestic) and 25% of new enrollments were international.

The Department of Geography has taken several steps to enhance department diversity over the past several years. First, Geography dropped requirement of the GRE, a biased and expensive entrance exam, for all graduate programs including the Accelerated/Non-Thesis named option. Second, Geography has convened a Climate Committee and completed a first Climate Survey across faculty, faculty associates, lecturers, post-docs, graduate students, and academic and university staff. Third, Geography has participated in campus Target of Opportunity (TOP) hires and has hired three new faculty from underrepresented groups in the past four years, in part with GISPP revenue.

Given that the Accelerated/Non-Thesis named option is a revenue generating program, care is needed to avoid recruitment strategies that are predatory or extractive. One idea that has been discussed but not yet implemented is to establish scholarships or paid internships for accepted students from underrepresented groups to offset program costs.

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.

As face-to-face curriculum, the Accelerated/Non-Thesis named option courses are shared with the Geography and Cartography & GIS BA and BSc degrees, the Geography and Cartography & GIS MSc degrees (Thesis named options), and the Geography PhD degree. Accordingly, instruction is provided by four tenured/tenure-track faculty in Cartography & GIS (Song Gao, Qunying Huang, Robert Roth, and A-Xing Zhu) as part of their 2-2 teaching rotations. However, as a revenue-generating program, student services and advising for the Accelerated/Non-Thesis named option are shared with other online programs under purview of the GISPP, including the Cartography & GIS MSc GIS Development named option, the GIS Fundamentals Capstone Certificate, and the Advanced GIS Capstone Certificate.

The benefit of this overlap is the stackability of programs and efficiency in instructional maintenance and student advising. Challenges lie in the increased volume of students and the implementation of services across multiple programs. For example: each program has its own admissions deadlines and processes; each program requires individual student advising; each program requires graduation processing, etc.

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.

The Accelerated/Non-Thesis named option is supervised by the Department Chair (Jack Williams), the GISPP Director (Robert Roth), the GISPP Program Manager (Brittney Krauss), and the GISPP Oversight committee comprising additional faculty from the Geography Department, including the Chair of the Finance Committee and representative from the Curriculum Committee. As a result of the GIS
Development named option five-year self-study, an annual GISPP retreat will be held with attendance from all face-to-face and online instructors and GISPP stakeholders to set and review the strategic goals of the Accelerated/Non-Thesis named option and other GISPP activities. The first retreat will be held in April 2022.

**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.

*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.

Table 1 presents admissions and enrollment for the Accelerated Masters named option since creation in Fall 2018, as well as projections into AY25. We had 95 total applicants since AY19, accepting 55 applicants during this time span. The majority of student enroll in Fall and Spring semesters, and the enrollment totals across AY18-22 are consistent with our prior GIS Certificate. While advertised as an “Accelerated” program, students can either complete the program in three semesters or part-time across two years. We have had 26 students graduate from the Accelerated Masters since launch in AY18.

As a face-to-face program, enrollment in the Accelerated Masters named option was impacted by the pandemic, showing a dip in enrollments in AY21. We estimate 6-8 students who planned on complement the resident Accelerated Masters named option instead enrolled in the online GIS Development named option during this time. Enrollment rebounded in AY22.

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6. Funding Considerations

a. For traditional/pooled programs – How is the program successfully funding its students?

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.
Over FY21, the GIS Professional Programs had a total program revenue of $1,143,474, direct expenses of $646,167, and a contribution to L&S of $381,120. Within this total, the estimated components for the Accelerated/Non-Thesis named option are a program revenue of $89,600, direct expenses of $30,921, and a contribution to L&S of $29,864. Although these numbers are strong, the FY21 total revenues declined by 20% relative to FY20 (FY21: $1.14M; FY20: $1.44M), a worrying trend. However, a revised tuition policy using a fixed $800/credit was approved for the Accelerated/Non-Thesis named option in Fall 2021; we estimated a 2-3x increase in revenue for FY22 under this tuition model.

The geospatial industry accounted for 425,000 employees in 2010 with an anticipated growth of 35% by 2020 (http://www.esri.com/news/arcnews/summer12articles/strengthening-the-gis-profession.html). The profession currently has only a 0.6% unemployment rate (https://money.usnews.com/careers/best-jobs/cartographer). A market analysis completed by DCS in August 2021 is attached as an appendix to this report, suggesting continued market demand. There is a continued nationwide demand for employees with our graduates’ job skills, with 100% of graduates responding to our alumni survey (proctored 3-4 months after graduation) across all Cartography and GIS programs indicating they were employed full time in the geospatial industry with a median salary of $68K.

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

This is an accelerated program in which students are expected to complete their coursework in two years or less. Students in this program are required to complete Geog 778: GIS Development Practicum, which is currently only offered in an online instruction mode. Additionally, all students in this program are permitted to take up to two online only courses offered to our online programs (not including 778) if extenuating circumstances prevent that student from taking the in-person course section prior to their expected graduation date. Students are not permitted to complete more than half of their coursework online, unless extenuating circumstances prevent them from taking courses in-person (e.g., the COVID-19 impact to course offering Spring 2020-Spring 2021). This program adheres to the Graduate School standards for English Proficiency.

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

The Department of Geography currently is conducting a search for two tenure-track assistant professors who will contribute courses in Cartography & GIS. We will need additional teaching assistant funding lines if we are able to incorporate these courses into our programs. We also wish to move Geography 560 and 573 from 3-4 credits to add a technical lab component, which also will require additional teaching assistant funding lines.