Agenda and Evaluation Report for
Audit & Review Face-to-Face Meeting
University of Wisconsin-Whitewater
Computer Science (MS) Graduate, 2022-2023

Date: 2/14/2023
Time: 1:00-2:00
Place: LT 4120

Invited: Interim Provost Robin Fox; Dean Matt Vick (Graduate Studies); Dean Frank Goza (Letters and Sciences); Department Chair/Program Coordinator Jiazhen Zhou; faculty and staff in the Computer Science (MS) program Hien Nguyen, Zach Oster, Athula Gunawardena, Arnal Ganguly, Sue Roberts; Audit & Review Team Chair Carrie Merino; Audit & Review team members Rhea Vichot, Christine Neddenriep; Assessment Representative Katy Casey

1) Call to order by Dr. Carrie Merino, Audit and Review Team Chair at 1:02 pm.

2) Introductions of faculty and staff present.

3) Overview of review team evaluation process and comments welcomed from M.S. faculty present. Dr. Jiazhen Zhou, department chair and other faculty agree that A&R was a good opportunity to reflect on program in today's market, versus 6 years ago when program was created. Faculty identified several strengths of the current MS program, including:

  - Department is strong and works as a team, and has a shared vision for program
  - Faculty research productivity is high, including awarded grants
  - Faculty maintain collaborative relationships with industry
  - Excellent advising and mentorship from faculty for students in the program
  - Student-centered focus, particularly for career-changing students enrolled in the program
  - High quality program with rigor emphasized

   Other strengths also identified by the A&R Review Team (see end of report for additional items):
  - 4+1 Model is a unique strategy for recruitment from within UW-Whitewater

4) Discussion of Review Team's evaluation:

   a) A primary concern for the Review Team is the need for the program to address recruitment numbers. The program has grown and made attempts to specialize and recruit diverse students. Recruitment is primarily occurring in the department. The program has realistic goals for new enrollment and would like to have more advertising and help marketing the program from the University.

   b) Several factors affecting enrollment were presented by faculty. These include catering to career-changing students, which brings some additional challenges. Faculty feel that smaller cohort is necessary to help these students catch-up or get up to speed- "merging previous life with this new life."

   c) The program being largely campus-based with some hybrid course options was also discussed. The presence of strong MS Computer Science programs in Madison and Milwaukee was highlighted. The need to consider online modality to market to broader audience – outside of region with less competition was emphasized by the Review team and campus leadership present in the meeting. Faculty recognize that, at this point, recruitment is very time and labor intensive for faculty member assigned to this role. Marketing program based on strengths, e.g., small class sizes, distinguished faculty was also suggested.

   d) Another primary concern for the Review Team is a lack of a coherent sense of program identity and difficulties distinguishing the program from others in the area. This appears to be a fundamental piece that contributes to all areas of program challenges at this time, including recruitment, retention, assessment, and long-term program viability.

- To begin this discussion, the Review Team asked about Program Identity and history. Program faculty provided additional context: First designed the program for students who were interested in doing research and advance technical work who already had some background knowledge and training/course work, and what has been seen over time is more growth in the career and 4 plus 1 students- they typically have a BS is a different discipline area and want to develop additional skills, so more work needs to be done to help develop experiences for these students while maintaining interests of "traditional" cohort.

- Program faculty agree that there is a need to find an identity to help the program grow. Suggestions they have recently considered include offering courses in emerging new areas, e.g., data mining and cybersecurity. Faculty recognize that there is a need to evolve the program from the original design.

- Review Team Chair suggests completing a rigorous Strategic Planning process, revisiting the mission, vision, and values of the program. Setting goals based on a more coherent sense of what sets the program apart from competitors with more resources was emphasized. Involving a consultant or mentor to complete this process was also suggested to help provide additional objectivity and accountability.

e) As part of the Strategic Planning process, goals that highlight the need for a more fine-tuned assessment plan for the program was discussed. The need to diversify the types of data collected as well as implement a strategic way that data is reviewed and utilized was highlighted. Program faculty recognize that this is a need for their program at this time. Faculty also shared that their advisory board recently suggested an increased focus on data for their program. Several additional suggestions were made, including:

- Suggestion for program to attend Assessment Institute to support the growth of the program
- Refine Student Learning Outcomes (SLO's) that highlight the uniqueness of the program. The Assessment Institute can help with this. If not feasible, consider utilizing another program/faculty member on campus as a mentor in this process.
- Create an Assessment plan for each SLO that demonstrates how and when they are assessed and how that data is then used to inform the program
- Faculty from the program also highlight that they have been considering instituting an Employer Survey for those who are employing graduates of the program. This was encouraged as part of the larger assessment and strategic plans.

5) **Recommended Actions**: The evaluation report lists four recommended action (see page 13, point 3) related to launching more online course options, assessment, program management, and evaluating post-graduate outcomes.

6) **Recommended Result**: *Continuation with minor concerns*
   - **Please make use of the detailed comments in the evaluation report (below).**
   - **Select all applicable boxes and fill in the appropriate year:**
     ☒ **Next FULL self-study will be due to the Dean on October 1, 2027 and to the Assessment Office on November 1, 2027.**

7) Adjourn by Audit and Review team at 1:54 pm.

Review team report is attached below, including Recommended Actions and instructions for Progress Reports (if required).

University of Wisconsin-Whitewater
Review of Audit & Review Self-Studies
Graduate Programs, 2022-2023

Date of Evaluation _____12/14/2022_____Short Self Study (SS*)_____
Program:___Computer Science (MS)_____   Major ☒   Minor ☐

Evaluations submitted by: Carrie Merino, Katy Casey, Christine Neddenriep, Rhea Vichot, and Matt Vick
Review meeting attended by: Carrie Merino, Katy Casey, Christine Neddenriep, Rhea Vichot, and Matt Vick

I. General Program Information

1. The program's mission statement reflects the nature and scope of the program.

Sufficient Evidence	5
Some/Partial Evidence	0
No/Limited Evidence	0

Comments for I.1
None

2. The program's mission statement aligns with the School of Graduate Studies mission.

Sufficient Evidence	3
Some/Partial Evidence	2
Not Applicable (explain why in comments below)	0
No/Limited Evidence	0

Comments for I.2
The program recognized similarities between the mission statement but did not articulate conscious alignment to the college mission- e.g., practitioner-oriented programs.

3. Program described changes impacting the program since the last review.

Sufficient Evidence	4
Some/Partial Evidence	0
No/Limited Evidence	1

Comments for I.3
This is the first self-study.

4. Characteristics of the program set it apart from others when compared regionally and nationally. The unique aspects of the program attract students.

Sufficient Evidence	0
Some/Partial Evidence	5
No/Limited Evidence	0

Comments for I.4

Strengths of the program are mentioned, but I'm not sure they explain how the program is "set apart."

It would be helpful to understand common characteristics of other programs to have a point of comparison. It is great the program referenced student feedback when noting what draws them to the program.

I would like to see additional evidence of this- The points listed seem pretty basic.

How does the program compare with other programs in computer science regionally or nationally?

5. The program has been responsive to actions recommended from the previous Audit and Review report; Progress Reports have been submitted, if relevant.

Sufficient Evidence	0
Some/Partial Evidence	0
No/Limited Evidence	0
Not Applicable/NA	5

Comments for I.5

First self-study

6. The program has achieved or maintained program-level accreditation or has considered seeking it, where appropriate (only select N/A if there is no accreditation available).

Sufficient Evidence	0
Some/Partial Evidence	0
No Evidence	0

General Comments related to section I.
None

II. Alignment within the University

1. The program contributes to the fulfillment of UW-Whitewater's mission.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0
Total	5

Comments for II.1
None

2. The program contributes to the fulfillment of UW-Whitewater's Strategic Plan.

Sufficient Evidence	3
Some/Partial Evidence	2
No/Limited Evidence	0

Comments for II.2

Some data on student retention would have been helpful to support the claim.

General comments related to section II.

The relationships the department and program have cultivated with local employers has been especially beneficial as well as the advisory board in ensuring cutting edge practices and currency in the curriculum.

III. Program Goals & Accomplishments

1. Goals and objectives were identified and undertaken to improve and advance the program.

Sufficient Evidence	3
Some/Partial Evidence	2
No Evidence	0

Comments for III.1

The goals listed seemed related to launching the program- which seem appropriate since this is still a relatively new program.

Goal 3 states desire to attract career professionals. Can data be shared? This is opposite of the 4+1 market that uses the "senior privilege" of taking graduate courses at undergraduate tuition.   The program needs to be aware of the logistics of using these credits and system policy.

2. Goals currently in place will contribute to the program's advancement. Criteria for determining success were measurable and attainable.

Sufficient Evidence	3
Some/Partial Evidence	2
No Evidence	0

Comments for III.2

Strong goals for recruitment, increasing accessibility of the program via online instruction, and maintenance of contact with alumni.

Budgetary impact of promoting the 4+1 pathway need to be considered. None of the tuition from seniors taking 12 credits of graduate courses will support the graduate program.

3. The program has a process for setting and assessing goals and making decisions about changes to the program goals.

Sufficient Evidence	2
Some/Partial Evidence	3
No/Limited Evidence	0

Comments for III.3

Three avenues of feedback are in place- great sources of information. It is just not very clear if there is a consistence schedule for managing program goals and discussion of student learning.

Need to more intentionally connect the steering committee, advisory board, and exit interviews to current goals you have set. The previous goals mentioned were specific to increasing enrollment/accessibility and maintaining contact with alumni.

4. Program faculty, staff, and/or students received special recognitions or awards during the review period.

Sufficient Evidence	3
Some/Partial Evidence	2
No/Limited Evidence	0

Comments for III.4

None

General comments related to section III.
None

<h2 style="text-align:center">IV. Curriculum</h2>

1. The program has a clearly articulated, efficient, and purposeful curriculum, complete with a capstone experience.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for IV.1
None

2. Dual-listed courses are described and explain differences between expectations for undergraduate and graduate students.

Sufficient Evidence	0
Some/Partial Evidence	0
Not Applicable	5
No/Limited Evidence	0

Comments for IV.2

dual listed courses not offered
The program does not offer dual-listed courses.
Program has no dual-listed courses
No dual listed courses

3. Changes to the curriculum were described, including the basis for the changes.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for IV.3

The new certificate, emphasis, and degree in cybersecurity are attractive and needed additions.

4. Appropriate assessment data were used in making curricular revisions.

Sufficient Evidence	2
Some/Partial Evidence	3
No/Limited Evidence	0

Comments for IV.4
The program considered student and instructor feedback on limited depth in areas of interest and also responded to industry demand. However, there was not a clear link between assessment of student learning on curricular changes.

5. The program provides opportunities for students to participate in high impact practices.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for IV.5

Great to hear about theses including faculty from chemistry, music, politics, and psychology.

General comments related to section IV.
None

V. Assessment of Student Learning

1. Student learning outcomes are "mapped" to Master's Level Essential Learning Outcomes.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for V.1
None

2. The program collected a variety of appropriate assessment data allowing judgments about the extent to which students are achieving learning outcomes.

Sufficient Evidence	2
Some/Partial Evidence	3
No/Limited Evidence	0

Comments for V.2

The program includes direct and indirect methods of assessment, course assignments, surveys, advisory board and student interviews. There was some conflation in the assessment plan between assessment of students learning and assessment of program goals.

Evidence collected from two signature courses.

Doesn't explain how data was collected for the classes picked to assess SLOs. A concrete example would be helpful.

The table provided is very detailed and has instructor level feedback. It is strong evidence of thoughtful processing of assessment data. Does the program want instructor-level info to be a permanent part of this report?

3. Program faculty consider assessment data in making changes to the curriculum, students' learning outcomes, and/or other aspects of the program.

Sufficient Evidence	3
Some/Partial Evidence	2
No/Limited Evidence	0

Comments for V.3

There seemed to be consideration of student pre-requisite skills with the suggestion of a "Mathematics for Graduate Course Work" option. Also, student feedback was considered when making changes to the number of credits in core courses. Advisory board made suggestions as to the knowledge and skills expected of MS graduates.

The program is collecting information from a variety of sources to inform needed changes in the curriculum.

4. Assessment data and related outcomes are shared with appropriate constituencies.

Sufficient Evidence	0
Some/Partial Evidence	2
No/Limited Evidence	3

Comments for V.4

This was not explicitly addressed in the self-study.

The sharing of data and outcomes with constituencies is not addressed.

General comments related to Section V.
None

VI. Student Recruitment, Enrollment, Retention, and Graduation
A. Trend Data

1. Program explains fluctuations in enrollment.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VI.A.1

Factors accounting for variance identified well with regard to COVID, less face-to-face interactions and drop in international students.

2. Five-year enrollment and graduation trends reflect program vitality and sustainability.

Sufficient Evidence	1
Some/Partial Evidence	4
No/Limited Evidence	0

Comments for VI.A.2

Program has identified need to increase enrollment.

As stated, enrollment numbers have been steady but SCH have fallen. I think there is some addressing that has been done, but I wonder what support the department needs to bolster numbers, especially from the 4+1 pool of students.

The program is aware that this is an area that needs action due to the program being offered on a self-supporting basis. The addition of the online option is in response to this.

3. Program has strategies to recruit and retain students.

Sufficient Evidence	0
Some/Partial Evidence	5
No/Limited Evidence	0

Comments for VI.A.3

Recruitment seemed to be the focus of the strategies listed. It is not clear if retention is an issue for students in this program.

Information provided about recruitment but not retention.

4. Students can enroll in appropriate courses and proceed without delaying graduation.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VI.A.4
None

5. Program made efforts to engage underrepresented communities within the University.

Sufficient Evidence	1
Some/Partial Evidence	4
No/Limited Evidence	0

Comments for VI.A.5

The program is diverse suggesting it does not struggle to engage UR communities.

6. Composition of students approximates or exceeds the diversity of students at the University.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VIA.6

meet and exceeds university

7. Claim that the program is oversubscribed, undersubscribed, or at optimal level is justified or supported by examples or data.

Sufficient Evidence	1
Some/Partial Evidence	3
No/Limited Evidence	0

Comments for VIA.7
None

General comments related to section VI.A
None

B. Demand for Graduates

1. Placement information indicates that program graduates find employment of continue their education.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VI.B.1
None

2. Data suggests that employment opportunities for graduates of this program will remain strong.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VI.B.2
None

3. Described efforts to retain and track graduates.

Sufficient Evidence	2
Some/Partial Evidence	3
No/Limited Evidence	0

Comments for VI.B.3

Only general statements on LinkedIn tracking of alumni is mentioned. This area needs to be addressed as much as recruitment.

4. Described unique features of the program that set it apart from other system or regional colleges and universities.

Sufficient Evidence	1
Some/Partial Evidence	3
No/Limited Evidence	0

Comments for VI.B.4

Program recognizes need to develop unique emphases or certificates.

I think of the possible new certificates/emphases that could be possible would perhaps be in Data Science/Engineering (perhaps in another partnership with COBE and the grad program in Finance)?

Additional emphases and certificates are not cost neutral... the program should be careful pursuing these... could courses be tied to existing certifications in the field that already have market presence?

Q8.9 - General comments related to section VI.B
None

VII. Resource Availability & Development
A. Faculty and Staff Resources

1. Information on numbers of full and part-time faculty and staff are provided. Expertise of teaching staff are aligned with the needs and future vision for the program.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VII.A.1
None

2. Tenure and promotion standards, including post-tenure requirements, reflect faculty and staff ability to advance in rank.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VII.A.2
None

3. Information is provided about changes in the faculty since the last Audit and Review.

Sufficient Evidence	3
Some/Partial Evidence	0
No/Limited Evidence	0
Not Applicable (explain why in comments below)	2

Comments for VII.A.3

First A&R

4. The program has identified staffing changes and anticipated areas of potential future need.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VII.A.4
None

General comments related to section VII.A
None

B. Student Resources

1. The program has adequate personnel, student help, and service and supplies to serve its graduate student population.

Sufficient Evidence	3
Some/Partial Evidence	2
No/Limited Evidence	0

Comments for VII.B.1

It has used creativity within budget constraints.

2. The program has adequate facilities, equipment, technological, and library resources to effectively serve its students.

Sufficient Evidence	2
Some/Partial Evidence	3
No/Limited Evidence	0

Comments for VII.B.2

What physical needs does the program foresee in the next five or ten years?

The cloud computing environment will likely need to be paid with the program's budget as this is a resource that will only be used by these program students.

General comments related to section VII.B
None

VIII. Conclusions and Recommendations from the Department or Program

1. Areas of strength are provided.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VIII.1

Cutting edge courses are a more sustainable short-term goal to adding "hot topics" than new emphases or certificates. Has the program investigated whether there are students who desire a "coursework only option" and find a thesis too intimidating?

2. Areas of improvement and continued progress are discussed.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VIII.2

Data Science should be explored with ITSCM as there is already a "Data Analytics" masters degree and certificates.

3. Recommendations and resources are discussed.

Sufficient Evidence	4
Some/Partial Evidence	1
No/Limited Evidence	0

Comments for VIII.3

There are very good goals listed, but I think they may be too many for the program to focus on in 5 years... consider prioritizing them.

General comments related to section VIII

None

1. Strengths of the Program

Cutting edge curriculum in cybersecurity added; use of exit interviews, advisory board, interviews with faculty and students as well as graduate school outcomes to inform goals.

This is a program in an important economic area with many jobs available. The focus on a project-based curriculum fits with UW-W's mission in providing practitioner-based graduate education.

2. Areas for Work or Improvement

Need to identify embedded assessments throughout the program to inform developing competencies and skills in students.

Grow enrollment Explore methods of making curriculum efficient with available faculty and resources.

3. Recommended Actions

1) Launch increased online course options – consider using LTC and Instructional Design resources to deliver a high-quality user experience.
2) Complete the assessment plan by reporting findings and analysis by program learning outcome, and not by course and instructor.
3) Create a consistent schedule for managing program goals and discussion of student learning. For example, designate one department meeting per semester where this occurs.
4) Create a plan to determine student success, and post-graduate outcomes, upon completion of the degree.

4. Recommended Result

Insufficient Information in the self-study to make a determination; revise self-study & resubmit.	0
Continuation without qualification	0
Continuation with minor concerns	5
Continuation with major concerns in one or more of the four areas; submit annual progress reports to the College Dean & Associate Vice Chancellor for Academic Affairs on progress in addressing the major concerns	0
Withhold recommendation for continuation, place on probation, and require another complete Audit & Review self-study within 1-3 years, at the Committee's discretion.	0
Withhold recommendation for continuation, place on probation, recommend placing in receivership within the college, and require another complete Audit & Review self-study within 1-3 years at the Committee's discretion.	0
Non-continuation of the program	0