Establishment of a New Graduate Certificate in Forensic Accounting

Submitted by:
Master of Science in Accounting (MSA) Program
School of Business and Economics

1. Proposal Date: July 26, 2019

2. Proposing Contacts and Departments: Joel C. Tuoriniemi, MSA Program Director (jctuorin@mtu.edu)

3. Sponsor Department Approvals: Not Applicable

4. General Description and Characteristics of Certificate

4.1 General Description

The School of Business and Economics at Michigan Tech proposes a nine credit Certificate in Forensic Accounting. Forensic accountants investigate and prevent white-collar criminal activity in the financial and banking sectors. They combine their accounting knowledge with investigative skills in various litigation support. Forensic accountant also have the knowledge to assist in development of corporate accounting systems and risk assessment to help prevent fraud. They are employed by public accounting firms, corporations, and governmental units.

The proposed certificate provides graduate students with the ability to detect and prevent fraudulent activity through a series of case studies, risk analysis techniques, and auditing studies.

4.2 Catalog Description

Coursework in the Forensic Accounting Certificate is designed to allow students to develop knowledge and skills in investigative accounting and fraud prevention. Our contemporary program combines traditional auditing principles with information security and data analysis techniques to provide students with advanced forensics training.

5. Rationale

In a the wake of scandals such as Madoff, Wells Fargo, Enron and many others, the demand for Forensic Accountants has grown about 20% per year. It is estimated by the Association of Certified Fraud Examiners that approximately 5% annual revenue around
the world is lost to fraud. Globally that translates to $3.5 trillion in potential losses. Fraud is notoriously difficult to detect and counteract; the typical perpetrator is intelligent, well-educated and in a position that allows them to easily cover their tracks.

Forensic accountants generally enjoy a 31% income premium over their peers. There are 2 main certificates options open for Forensic Accountants, the CFE (Certified Fraud Examiner) and CFF (Certified in Financial Forensics). The Certificate in Forensic Accounting would assist the students in passing those examinations.

6. **Related Programs**

The following is a sampling of AACSB accredited schools that offer related programs:

a. The University of North Carolina – Charlotte offers a 9-credit Forensic Accounting Certificate. [https://continuinged.uncc.edu/forensic](https://continuinged.uncc.edu/forensic)


c. SUNY Polytechnic Institute offers a 9-credit Forensic Accounting & Valuation Concentration as part of its Master of Science in Accounting program. [https://sunypoly.edu/academics/majors-and-programs/ms-accountancy/forensic-accounting.html](https://sunypoly.edu/academics/majors-and-programs/ms-accountancy/forensic-accounting.html)

d. Rider University offers a 12-credit Forensic Accounting Graduate Certificate. [https://www.rider.edu/academics/colleges-schools/college-business-administration/graduate-programs/forensic-accounting-graduate-certificate-program](https://www.rider.edu/academics/colleges-schools/college-business-administration/graduate-programs/forensic-accounting-graduate-certificate-program)

e. Purdue University Northwest offers a 12-credit Forensic Accounting Certificate. [https://academics.pnw.edu/business/forensic-accounting-fraud-investigation/](https://academics.pnw.edu/business/forensic-accounting-fraud-investigation/)

f. Georgia Southern University Parker College of Business offers a 12-credit Forensic Accounting Certificate. [https://parker.georgiasouthern.edu/soa/forensic-certificate/](https://parker.georgiasouthern.edu/soa/forensic-certificate/)

7. **Projected Enrollment**

It is projected that most of the enrollment in the program will be from Michigan Tech students who have completed nine credits of undergraduate accounting (Financial Accounting, Managerial Accounting, & Intermediate Accounting). This is because one of the required courses in the proposed certificate, ACC 4100 – Audit & Assurance, requires Intermediate Accounting as a pre/co-requisite. Analysis of prior years’ student profiles suggest the majority of students satisfying this nine credit sequence will be 1) students who have earned undergraduate degrees from the School of Business & Economics, Mathematical Sciences, and Scientific & Technical Communication (who
will hopefully then transition in to the MSA program) and 2) the majority of students enrolled in the Master of Science in Accounting (MSA) program.

<table>
<thead>
<tr>
<th>Year</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2019</td>
<td>10 students</td>
</tr>
<tr>
<td>Fall 2020</td>
<td>12 students</td>
</tr>
<tr>
<td>Fall 2021</td>
<td>15 students</td>
</tr>
<tr>
<td>Fall 2022</td>
<td>18 students</td>
</tr>
<tr>
<td>Fall 2023</td>
<td>20 students</td>
</tr>
</tbody>
</table>

8. **Scheduling Plans**

The coursework will be offered during regular instructional time periods and will not require changes to scheduling of classes.

9. **Curriculum Design**

**Required Coursework – 6 credits**

ACC 4100 - Audit & Assurance
ACC 5100 - Advanced Audit & Forensic Examination

**Elective Coursework – 3 credits**

BA 5200 - Information Systems Management & Data Analytics OR
MA 5701 - Statistical Methods OR
MA 5781 - Time Series Analysis & Forecasting

10. **Course Descriptions**

Course Descriptions for each respective course are as follows:

**ACC 4100 - Audit and Assurance**
Auditing procedures and techniques associated with public accounting and with internal auditing for business entities. Topics include auditor's responsibilities, professional ethics, generally accepted auditing standards, purpose and types of audits, objectives, internal control, evidence, organization within the public accounting profession, the audit program, and auditing procedures and techniques.

**ACC 5100 - Advanced Auditing and Fraud Examination**
An in-depth study of auditing with a focus on fraud examination from an external auditor's perspective. The course utilizes problems, cases, and projects relating to fraud examination and forensic accounting.

**BA 5200 - Information Systems Management and Data Analytics**
Focuses on management of IS/IT within the business environment. Topics include IT infrastructure and architecture, organizational impact of innovation, change management, human-machine interaction, and contemporary management issues involving data analytics. Class format includes lecture, group discussion, and integrative case studies.

MA 5701 - Statistical Methods
Introduction to design, conduct, and analysis of statistical studies, with an introduction to statistical computing and preparation of statistical reports. Topics include design, descriptive, and graphical methods, probability models, parameter estimation and hypothesis testing.

MA 5781 - Time Series Analysis and Forecasting
Statistical modeling and inference for analyzing experimental data that have been observed at different points in time. Topics include models for stationary and non-stationary time series, model specification, parametric estimation, model diagnostics and forecasting, seasonal models and time series regression models.

Students pursuing the Certificate in Forensic Accounting will work with their advisors to choose the best elective course, given area of interest and prior coursework.

11. Model Schedule Demonstrating Completion Time

The Certificate is designed to be completed over a two-semester sequence.

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 4100 Audit &amp; Assurance</td>
<td>ACC 5100 Advanced Audit &amp; Forensic Exam</td>
</tr>
</tbody>
</table>

Students will complete the Certificate requirements through taking the elective course in either Fall (MA 5701) or Spring (BUS 5200 or MA 5781) semester.

At this time, the Certificate will be completed on-campus. The SBE is exploring utilization of a synchronous classroom that would allow for a distance learning opportunity in the future.

12. Library and Other Learning Resources

No new library or other learning resources will be required by the MSA program

13. Faculty Resumes

The School of Business and Economics has the following faculty members in the accounting program:
Curriculum Vitae can be found at https://www.mtu.edu/business/people-groups/faculty-staff/. Dr. Jun Dai’s CV is attached hereto.

The School of Business and Economics is also searching for an additional faculty member with an anticipated start date of Fall 2020. Finalists for the position are scheduled for on campus visits during September 2019.

14. **Equipment**

No additional equipment will be required.

15. **Program Costs**

No additional costs are anticipated. Current faculty resources would support enrollment growth to 75 students (at a 15:1 ratio). Charges for any software not provided through gratuitous educational licenses can be recovered through appropriate course lab fees.

16. **Space**

No additional space will be required.

17. **Policies, Regulations, and Rules**

Not Applicable

18. **Accreditation Requirements**

The School of Business and Economics is accredited by the AACSB. Adding this certificate program will not result in any change to accreditation requirements. The Certificate in Forensic Accounting will automatically become subject to periodic review along with all other degree programs within the School of Business and Economics.

19. **Planned Implementation Date**

Fall 2019
20. **Assessment**

The Learning Objectives in the Certificate program are adopted from the American Institute of Certified Public Accountants (AICPA) Model Curriculum for Forensic Accounting, namely:

1. Understand the ethical and legal environment and responsibilities of a forensic accountant;
2. Demonstrate core forensic knowledge;

The Certificate program will also include a fourth Learning Objective centered on client communication.

An overview of Learning Objectives and potential courses for where the assessment will occur is as follows:

<table>
<thead>
<tr>
<th>LEARNING OBJECTIVE</th>
<th>COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand responsibilities of forensic accountant</td>
<td>ACC 4100</td>
</tr>
<tr>
<td></td>
<td>ACC 5100</td>
</tr>
<tr>
<td>Demonstrate core forensic knowledge</td>
<td>ACC 5100</td>
</tr>
<tr>
<td></td>
<td>BUS 5200/MA 5701/MA 5781</td>
</tr>
<tr>
<td>Demonstrate understanding of forensic accounting in specific settings</td>
<td>ACC 4100</td>
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<tr>
<td></td>
<td>ACC 5100</td>
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<tr>
<td>Client Communication</td>
<td>ACC 4100</td>
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<td></td>
<td>ACC 5100</td>
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</tbody>
</table>
Establishment of a New Graduate Certificate in Accounting Analytics

Submitted by:
Master of Science in Accounting (MSA) Program
School of Business and Economics

1. **Proposal Date:** July 26, 2019

2. **Proposing Contacts and Departments:** Joel C. Tuoriniemi, MSA Program Director (jctuorin@mtu.edu)

3. **Sponsor Department Approvals:** Not Applicable

4. **General Description and Characteristics of Certificate**

   **4.1 General Description**

   The School of Business and Economics at Michigan Tech proposes a nine credit Certificate in Accounting Analytics. Accounting analytics is needed at the graduate level to provide students with a skill set that is valued by prospective employers and rapidly becoming an expected educational outcome. For more information, please refer to a paper released by the Big 4 accounting firm Pricewaterhouse Coopers entitled “Data Driven – What Students Need to Succeed in a Rapidly Changing Business World”

   The proposed certificate provides graduate students with a contemporary and robust education in accounting analytics that will provide them with a competitive edge when entering the professional work environment.

   The goal of the certificate is not to turn those seeking the designation into computer programmers or data science experts. There are a number of quality programs already in existence at Michigan Tech that provide students with this opportunity. It is extremely important, however, that students be able to utilize common accounting analytics techniques to communicate with computer programmers and data experts in order to make informed business decisions. The Certificate in Accounting Analytics meets this need.

   **4.2 Catalog Description**

   Coursework in the Accounting Analytics Certificate is designed to allow students to develop knowledge and skills expected in a contemporary accounting environment that utilizes analytics to drive informed business decision making.
5. **Rationale**

a. Strategic initiative to prepare students in accordance with Tech Forward “How Will Michigan Tech Influence and Adapt to Five Disruptive Forces”, most notably as it relates to Data Sources and Big Data

b. Strategic initiative to prepare students in accordance with the vision of Michigan Tech’s School of Business and Economics to produce “tech-savvy business graduates”

c. Michigan Tech’s School of Business and Economics’ accreditation body, the Association to Advance Collegiate Schools of Business (hereinafter, “AACSB”), now requires accounting programs to demonstrate “development of skills and knowledge related to data creation, data sharing, data analytics, data mining, data reporting, and storage within and across organizations.” (AACSB Standard 9 – Curriculum Content)

d. In an April 2017 survey by Forbes Insight and KPMG, 26% of financial executives said advanced technologies would become essential to accounting in the next two years, and 55% viewed advanced technology skills as becoming a “must have” in three to five years. [https://home.kpmg.com/content/dam/kpmg/us/pdf/2017/08/KPMG-Forbes-Digital-Transformation-report.pdf](https://home.kpmg.com/content/dam/kpmg/us/pdf/2017/08/KPMG-Forbes-Digital-Transformation-report.pdf)

6. **Related Programs**

The following is a sampling of AACSB accredited schools that offer related programs:


c. Penn State offers an online 9-credit Graduate Certificate in Business Analytics. [https://www.worldcampus.psu.edu/degrees-and-certificates/business-analytics-certificate/overview](https://www.worldcampus.psu.edu/degrees-and-certificates/business-analytics-certificate/overview)

e. The University of Connecticut offers a 12-credit Online Business Certificate in Accounting Analytics.
   https://accountinganalytics.uconn.edu/?gclid=EAIaIQobChMIstOwue7A4QIVCNgACh3_bgt_EAAYASAAEgKaatD_BwE

f. Providence College offers a 9-credit Business Analytics Graduate Certificate.
   https://business.providence.edu/cert-mba/

g. The University of Portland Pamplin School of Business offers a STEM designated 12-credit Business Analytics Certificate.
   https://business.up.edu/certificates/business-analytics-certificate.html

7. **Projected Enrollment**

   It is projected that most of the enrollment in the program will be from Michigan Tech students who have completed nine credits of undergraduate accounting (Financial Accounting, Managerial Accounting, & Intermediate Accounting). This is because one of the required courses in the proposed certificate, ACC 4000 – Accounting Data Analytics, requires Intermediate Accounting as a pre/co-requisite. Analysis of prior years’ student profiles suggest the majority of students satisfying this nine credit sequence will be 1) students who have earned undergraduate degrees from the School of Business & Economics, Mathematical Sciences, and Scientific & Technical Communication (who will hopefully then transition in to the MSA program) and 2) the majority of students enrolled in the Master of Science in Accounting (MSA) program.

   - Fall 2019 - 15 students
   - Fall 2020 - 17 students
   - Fall 2021 - 20 students
   - Fall 2022 - 23 students
   - Fall 2023 - 26 students

8. **Scheduling Plans**

   The coursework will be offered during regular instructional time periods and will not require changes to scheduling of classes.

9. **Curriculum Design**

    **Required Coursework – 6 credits**
    
    ACC 4000 - Accounting Data Analytics
    ACC 5700 - Accounting Analytical Methods

    **Elective Coursework – 3 credits**
ACC 5200 - Financial Statement Analysis OR
BA 5200 - Information Systems Management & Data Analytics

10. Course Descriptions

Course Descriptions for each respective course are as follows:

**ACC 4000 - Accounting Data Analytics**
Develop knowledge and competencies in data analytic techniques to generate accounting information used for business intelligence. Applied exercises with software tools used to cover topics including data preparation, analysis, visualization, and scenario analysis.

**ACC 5700 – Accounting Analytical Methods**
Statistical analysis of large datasets. Computer programming will be used to analyze and manipulate the data. Topics include fundamental analysis, fraud detection, default prediction on loans, and other contemporary accounting issues.

**ACC 5200 - Financial Statement Analysis**
Study of financial statement analysis and concepts of valuation utilizing accounting based financial information. Methods are applied to encompass decision making, communication, and judgement using problems, cases, and projects.

**BA 5200 - Information Systems Management and Data Analytics**
Focuses on management of IS/IT within the business environment. Topics include IT infrastructure and architecture, organizational impact of innovation, change management, human-machine interaction, and contemporary management issues involving data analytics. Class format includes lecture, group discussion, and integrative case studies.

Students pursuing the Certificate in Accounting Analytics will work with their advisors to choose the best elective course, given area of interest and prior coursework. As an example, students with appropriate backgrounds in accounting would be advised to select BA 5200 as the elective course, whereas students with appropriate backgrounds in management information systems would be advised to select ACC 5200.

11. Model Schedule Demonstrating Completion Time

The Certificate is designed to be completed over a two-semester sequence.

<table>
<thead>
<tr>
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<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 4000 Accounting Data Analytics</td>
<td>ACC 5700 Accounting Analytical Methods</td>
</tr>
<tr>
<td>ACC 5200 Financial Statement Analysis</td>
<td>ACC 5700 Accounting Analytical Methods</td>
</tr>
</tbody>
</table>

OR

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 4000 Accounting Data Analytics</td>
<td>ACC 5700 Accounting Analytical Methods</td>
</tr>
<tr>
<td>BA 5200  Information Systems Management and Data Analytics</td>
<td></td>
</tr>
</tbody>
</table>

At this time, the Certificate will be completed on-campus. The SBE is exploring utilization of a synchronous classroom that would allow for a distance learning opportunity in the future.

12. **Library and Other Learning Resources**

No new library or other learning resources will be required by the MSA program

13. **Faculty Resumes**

The School of Business and Economics has the following faculty members in the accounting program:

- Robert Hutchinson, Professor
- Sheila Milligan, Senior Lecturer – Richard and Joyce Ten Haken Faculty Fellow
- Joel Tuoriniemi, Professor of Practice – Ed & Betty Robinson Faculty Fellow
- Jun Dai, Assistant Professor (joining January 2020)

Curriculum Vitae can be found at [https://www.mtu.edu/business/people-groups/faculty-staff/](https://www.mtu.edu/business/people-groups/faculty-staff/). Dr. Jun Dai’s CV is attached hereto.

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17. **Policies, Regulations, and Rules**

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<table>
<thead>
<tr>
<th>LEARNING OBJECTIVE</th>
<th>COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning of Legacy Technologies (Excel, Access)</td>
<td>ACC 4000</td>
</tr>
<tr>
<td></td>
<td>BUS 5200</td>
</tr>
<tr>
<td>Understanding Structured and Unstructured Databases (SQL, Hadoop)</td>
<td>ACC 4000</td>
</tr>
<tr>
<td></td>
<td>BUS 5200</td>
</tr>
<tr>
<td>Topic</td>
<td>Courses</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Obtaining and Cleaning Accounting Data (Alteryx)</td>
<td>ACC 4000&lt;br&gt;ACC 5700&lt;br&gt;BUS 5200</td>
</tr>
<tr>
<td>Data Visualization (Tableau, PowerBI)</td>
<td>ACC 4000&lt;br&gt;ACC 5200&lt;br&gt;ACC 5700</td>
</tr>
<tr>
<td>Descriptive, Predictive, Prescriptive Analysis (Oracle, SAS)</td>
<td>ACC 4000&lt;br&gt;ACC 5200&lt;br&gt;ACC 5700</td>
</tr>
<tr>
<td>Programming Languages (Python, R Open)</td>
<td>ACC 5700&lt;br&gt;BUS 5200</td>
</tr>
<tr>
<td>Client Communication</td>
<td>ACC 4000&lt;br&gt;ACC 5200&lt;br&gt;ACC 5700&lt;br&gt;BUS 5200</td>
</tr>
</tbody>
</table>

Review and Approval by SBE Faculty: March 22, 2019
Review and Approval by SBE Dean: March 22, 2019
Review and Approval by Deans’ Council: 
Review by Provost: 
Review by Senate Curricular Policy Committee: 
Introduced to Senate: 
Approved by Senate: 
Approved by Provost & President:
MiTechIDP

Navigate your degree
Develop a strategy to achieve your academic milestones. Minimize misunderstandings & develop the skills needed for your education & career. Reflect & identify goals, opportunities, & potential hurdles.

Plan for your career
Find additional resources and industry contacts. Discover more about what is ahead for you professionally.

Build a mentoring relationship
Go beyond being advised, and get mentored - discover new applications of your degree, reflect on what you want to get out of your graduate education, and explore your interests and career paths.

For more information, check out our webpage!
https://www.mtu.edu/gradschool/resources-for/students/professional/idp/

Michigan Technological University
1885
Graduate School
Introduction of IDP at Michigan Tech

Why IDP?
A tool to help graduate students in education planning and career preparation
To reflect and write short-term and long-term goals and how to achieve them
Determine skills needed for success and how to acquire them
Partnership with advisor and mentor: **IDP-assisted advising and mentoring**
- [https://www.mtu.edu/gradschool/resources-for/students/professional/idp/](https://www.mtu.edu/gradschool/resources-for/students/professional/idp/)
- [https://chemidp.acs.org/](https://chemidp.acs.org/)
- [myidp.sciencecareers.org](https://myidp.sciencecareers.org)

Multi-year process
**2014-17** - Development, testing (AGEP students) and evaluation
  - Developed an IDP template and got faculty review
**2018** - Pilot rolled out (MEEM-PhD, Bio, SFRES, Biomed) with a robust evaluation plan
Evaluation of IDP pilot

Strong support from students and faculty

**Students:**
- more regular and more constructive communication with advisors
- insight into questions to ask advisors
- writing plans and expectations in writing

**Faculty:**
- improved communication with students
- improved their ability to provide research advice and career advice

**Recommendations:**
- start the IDP process early, when student selects advisor
- organize IDP to align with student’s progression in program – beginning and advanced students have different issues
- provide instructions for use of IDP
- emphasize reflection on PhD progression and career consideration by students; distribute to both faculty and students

**By Deans:**
- add processes for enhancing faculty mentoring; best practices on good advising/mentoring
MiTechIDP for Research Graduate Students

Description of an IDP
Individual Development Plans (IDPs) are designed to help you to reflect on what you want to get out of your graduate education here, think of short-term and long-term goals, and explore your interests and career paths. It is a living planning document and should be modified as needed. The IDP is a tool to help identify goals, opportunities, and potential hurdles and discuss these with your advisor.

Importance of using an IDP
An IDP is a useful tool to help a graduate student and advisor:
- Reflect and develop a strategy for graduate education
- Manage their expectations and maintain a positive working relationship
- Minimize misunderstandings and conflicts

Suggestions for using this IDP
The MiTechIDP is presented as a Word document so that you can add or remove questions to meet your needs. It may be printed or completed electronically. We suggest the following:
- The student should reflect on their career pathway and post-graduation plans and complete the left hand column in the time frame recommended (highlighted in bold).
- The advisor should read the sections completed by the student and provide feedback. Feedback could be provided by completing the right hand column of this document or another mechanism.
- The student and the advisor should plan to meet each semester, or more regularly, to review progress toward the goals outlined in the IDP.

MiTechIDP – Revised September 2018
### Timeline for Academic Milestones – 1st semester

The table below is for the student and advisor to agree on a timeline for the milestones to complete the degree. Each student should complete the section(s) relevant to them. **It is recommended that you complete the timeline in the first semester and revisit it each year; add any additional milestones that are relevant.** The Graduate School maintains detailed web pages showing the timeline for various requirements for graduate degrees. See: [http://www.mtu.edu/gradschool/policies-procedures/timelines/](http://www.mtu.edu/gradschool/policies-procedures/timelines/)

<table>
<thead>
<tr>
<th>Academic Milestones</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Students completing an MS degree will complete this section</td>
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<tr>
<td>MS Coursework Complete</td>
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<tr>
<td>MS Thesis/Report Draft</td>
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<tr>
<td>MS Defense</td>
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<tr>
<td>Students completing a PhD degree will complete this section</td>
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<tr>
<td>PhD Coursework Complete</td>
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<td>PhD Research Proposal Examination</td>
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<tr>
<td>PhD Dissertation Defense</td>
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<tr>
<td>Relevant to all students</td>
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<tr>
<td>Paper Submissions (number)</td>
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<tr>
<td>Workshops and/coops/internships</td>
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<tr>
<td>Conference Paper &amp; Presentation</td>
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<tr>
<td>Proposal Submissions</td>
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<tr>
<td>Teaching (most applicable to Ph.Ds)</td>
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</tbody>
</table>

Student initials and date ____________________________  Advisor initials and date ____________________________
### Graduate Program Planning – 1st semester

These questions help the student and advisor understand the student’s overall goals, and how their education will help the student to achieve them. **It should be completed in the first semester.**

<table>
<thead>
<tr>
<th>Questions for Student</th>
<th>Comments by Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is your motivation for pursuing an MS or PhD degree? What are your career goals?</td>
<td>Comment on how the degree program will help fulfill your student’s career goals. Should there be changes?</td>
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<tr>
<td>What do you want to be doing 3-5 years after completion, such as working in academia, industry or governmental service, or self-employed?</td>
<td>Comment on how the degree program will prepare your student for their 3-5 year goals.</td>
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<tr>
<td>What do you consider to be your major strengths and weaknesses in meeting the requirements of the degree you seek?</td>
<td>Comment on what you can contribute to maximize your student’s strengths and help overcome any real or perceived weaknesses.</td>
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<tr>
<td>What actions do you want to undertake now to be better prepared after the completion of the degree?</td>
<td>Comment on how the actions can be fulfilled and what resources are needed to accomplish them.</td>
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</table>
## Research Focus – 2nd year

These questions are most appropriate after the research has begun, and before all of the coursework and qualifying examination are complete. Consider answering these questions in the second year of the program and revisiting as needed to refine and elaborate on them.

<table>
<thead>
<tr>
<th>Questions for the Student</th>
<th>Comments by Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the hypotheses or goals of the research that you are undertaking?</td>
<td>Comment on how well your student understands the project fundamentals and whether the hypotheses and goals are realistic.</td>
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<tr>
<td>Which courses or research training are required for your research?</td>
<td>Comment on the preparedness of your student to undertake the research and what else is required to be successful.</td>
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<td>What are your goals, timeline, and required resources for publishing in the literature and presenting at conferences?</td>
<td>Comment on your student’s plans for publishing.</td>
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<td>What are the major hurdles (such as time, equipment, supplies) to completing your research?</td>
<td>Comment on the appropriateness of the resources and the likelihood of them being available.</td>
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</table>
## Career Questions – 1-2 years before degree completion

These questions are most appropriate one to two years before degree completion. They should be considered in a timely manner so that the educational experience can prepare the student for their future career.

<table>
<thead>
<tr>
<th>Questions for the Student</th>
<th>Comments by Advisor</th>
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</thead>
<tbody>
<tr>
<td>What do you consider to be your strengths specifically for your chosen career path?</td>
<td>Comment on how you perceive the student’s strengths related to the chosen career path. Do you see strengths that are not listed?</td>
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<tr>
<td>What do you consider to be your weaknesses or lack of understanding specifically for your</td>
<td>Comment on your student’s weaknesses or lack of understanding related to the chosen career path. Do you see any that are not listed?</td>
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<td>chosen career path?</td>
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<td>During the upcoming 6 months, what professional growth opportunities and activities do</td>
<td>Comment on growth opportunities and activities of which your student may not be aware or that you suggest.</td>
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<td>you want to accomplish?</td>
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<td>What type(s) of resources do you think are required for you to fulfill these professional</td>
<td>Comment on the appropriateness of the resources and the likelihood of them being available.</td>
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<td>growth opportunities?</td>
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</table>
## Beyond the PhD – 1-2 years before degree completion

After completion of a PhD degree, many students will need to develop skills to become an independent investigator. These questions will help students think about professional development beyond the PhD degree requirements. **PhD students should complete this section one to two years before completing their degree.**

<table>
<thead>
<tr>
<th>Questions for the Student</th>
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</thead>
<tbody>
<tr>
<td>Which funding agencies typically support your field of research and are you familiar with their funding requirements and proposal submission process?</td>
<td>Comment on how well your student understands the funding landscape and what needs to be done to better understand how to be competitive.</td>
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<tr>
<td>Do you have plans to submit a proposal or assist your advisor in preparing a proposal?</td>
<td>Comment on opportunities for your student to submit proposals. Do you need his/her assistance and in what way?</td>
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<tr>
<td>Describe plans to enrich your teaching portfolio.</td>
<td>Comment on teaching opportunities you anticipate for your student.</td>
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<tr>
<td>What sorts of feedback have you received on teaching? What are your strengths and weaknesses and plans for developing your skills?</td>
<td>Comments on how well your student understands their teaching strengths and weaknesses and planned development activities.</td>
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</table>
Advising and Mentoring of Graduate Students

**Advising:**
- advise and support with academics to successfully complete program – knowledge and intellectual ability
- advise coursework to take, passing qualifying exams
- guide and oversee research becoming an independent researcher
- regular frequent meetings

**Mentoring:**
- takes a professional and personal interest
- help with career choice/advice and develop professional networks
- help with internships and job placement
- socialize into the discipline
- offer advice throughout a researcher’s career
- offer encouragement during difficult period
- infrequent meetings and as needed

*Some are good advisors, some are good mentors and some do both well*
Researcher Development Framework

Portfolio of skills needed to be successful researchers and leaders - 4 domains

A. Knowledge and intellectual ability (knowledge base, cognitive abilities, creativity)

B. Personal qualities for an effective researcher (enthusiasm, perseverance, integrity, self-confidence, time management)

C. Research governance and organization (professional conduct, research management, funding and finance)

D. Engagement, influence and impact (public engagement, team work, societal impact of research, communication)

https://www.vitae.ac.uk/researchers-professional-development/about-the-vitae-researcher-development-framework/developing-the-vitae-researcher-development-framework
THANK YOU!

Questions??
GTA/GTI Time Commitment Survey

We would like to gather information about the time spent by graduate students towards fulfilling their teaching responsibilities. The survey requires 3-5 minutes to complete. Although you were required to sign in, this survey is anonymous and we assure you that your credentials are not recorded. If you have any questions/concerns, please reach out to us at gsg@mtu.edu. You can also use the Contact Us form found on our website, http://gsg.mtu.edu/contact-us/
Thank you for taking the time to respond.

Section 1: Graduate program and support information

Q1. Which degree are you pursuing?
   a. MS (coursework),  b. MS (research),  c. PhD

Q2. Identify home department

Q3. Identify Support
   a. Full GRA
   b. Full GTA
   c. Partial GTA
   d. Other (no associate teaching responsibility)

Q4. Are you currently (or in the past have been) supported as a Graduate Teaching Assistant or Graduate Student Instructor?
   a. Yes  [Proceed to next section to answer survey questions]
   b. No   [Proceed to End of Survey]

Section 2: GTA/GTI Questionnaire

Q1. What is your teaching/associated responsibility? (Check all that apply)
   a. TA or Instructor for a Class,  b. TA or Instructor for a Lab,  c. Grader,  d. Other

Q2. Typical number of students in a class section
   a. Up to 15,  b. 16-30,  c. 31-50,  d. More than 50,  e. N/A

Q3. How many class sections do you teach in a week
   a. 1,  b. 2,  c. 3-4,  d. N/A

Q4. Typical number of students in a lab section
   a. Up to 15,  b. 16-30,  c. 31-50,  d. More than 50,  e. N/A

Q5. How many lab sections do you teach in a week
   a. 1,  b. 2,  c. 3-4,  d. N/A

Q6. What is the total number of contact hours with students in a week?
   a. <Drop down box to choose the number of hours: 1 through 20>,  b.21-25,  c.26-30

Q7. What is the total number of hours spent grading (assignments, lab sheets, etc.) in an average week?
   a. <Drop down box to choose the number of hours: 1 through 20>,  b.21-25,  c.26-30

Q8. How much time do you spend as office hours in a week?
   a. <Drop down box to choose the number of hours: 1 through 10>,  b.11-15,  c.16-20

Q9. Total time (Class/Lab Prep + Class/Lab + Grading + Office Hours + Others) per week
   a. <Drop down box to choose the number of hours: 1 through 20>,  b.21-25,  c.26-30,  d. More than 30
Section 3: Information of preparedness & support for teaching role

Q1. How much information did the department/supervisor provide you about the time commitment during the offer?
<Slider Scale, 1 through 5> 1: Very Little Information, 5: Adequate Information

Q2. How similar is the stated time commitment and the actual amount of time committed?
<Slider Scale, 1 through 5> 1: Large disparity. Consistently spend >2times the stated hours, 5: Very similar. Very little difference between stated & actual

Q3. Did the department/supervisor consistently provide you with sufficient equipment, material and/or other items that you require during the class/lab?
<Slider Scale, 1 through 5> 1: Very little material provided very inconsistently, 5: Adequate material provided consistently as required

Section 4: Thank you for your time!
Thank you for responding to this survey. If you have any comments/concerns, please feel free to enter them below.

<Space for respondents to enter any additional comments/concerns>