# ESF's Graduate Program Assessment Plan
# Version 3c
# 18 November 2020

## Background

Assessing ESF's graduate programs is challenging given their prescriptive to descriptive nature as illustrated by Figure 1a.

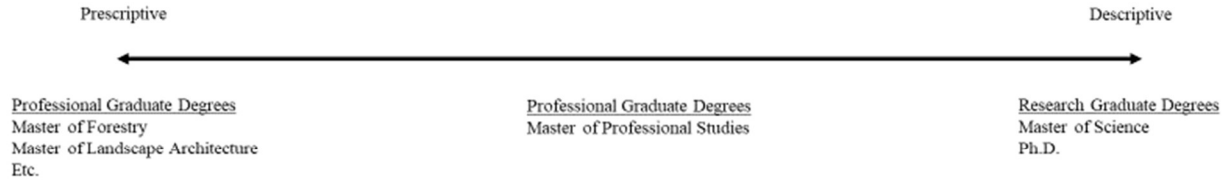


Figure 1a. ESF's Graduate Program Continuum

Prescriptive graduate programs are, for example, the Master of Forestry and the Master of Landscape Architecture where the curriculum must satisfy specific student learning outcomes as defined by professional societies that accredit them. Research graduate degree programs are on the descriptive end of the continuum. These programs specify the number of: i) thesis or dissertation credits, ii) seminar credits, and iii) the number of lower division vs upper division graduate course work credits required. However, because they are very research driven, the courses that comprise an individual student's graduate program are specific to addressing the research concern. The Master of Professional Studies (MPS) lies in-between prescriptive and descriptive on the continuum. A more prescriptive MPS would define a specific set of core courses comprising approximately half of the total required credits with the remaining course work allow the student to focus on an area of interest. An example of this type of MPS can be found in the Chemical Engineering Department. A more descriptive MPS would identify topic areas that must be addressed, such as, analytical methods that would include statistics, geographic information systems, etc. These topic areas would define how many credits must be used to satisfy the requirement and often providing a list of acceptable graduate courses. In some cases, a few specific courses would be required.

In addition, the continuum described in Figure 1a leads to overlaying an assessment protocol that can encompass both ends of this continuum. This is illustrated by Figure 1b.

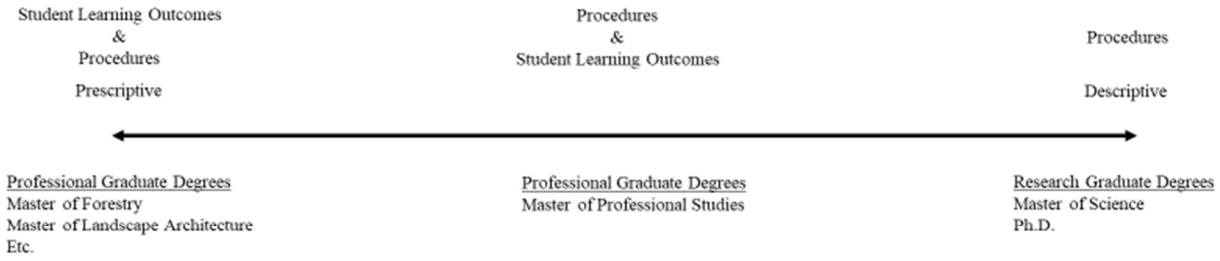


Figure 1b. Graduate Program Assessment Continuum

The assessment of SUNY ESF's graduate degree programs can comprise two assessment protocols. First, is a common student learning outcomes approach described by most professional societies and national accrediting bodies; for example, NWCCU (*https://www.nwccu.org/accreditation/standards-policies/standards/*), SACS (*http://sacscoc.org/app/uploads/2019/08/2018-POA-Resource-Manual.pdf*), MSCHE (*http://www.msche.org/wp-content/uploads/2018/06/RevisedStandardsFINAL.pdf*), and NECHE (*https://www.neche.org/resources/standards-for-accreditation/*).

The second is a procedures approach that draws on the Quality Management Systems (QMS) or International Standards Organization (ISO) method. A quality management system is repeatable, measurable, and constantly improving structured way of delivering a service or product supported by documented information such as *procedures, policies and forms* which define both expectations, responsibilities, and actions to achieve the stated quality goals. A key component of this approach is being able to collect the appropriate data to be able to improve the system continually.

**Assessing ESFs Graduate Programs – Currently**

The current responsibility for maintaining and improving the academic quality of the graduate programs lies primarily in the departments with the departmental faculty, graduate coordinators, and chairs. Responsibility for the quality of each student's learning experience is left to the faculty through the appointment and activities of students' advisors (major professors) and steering committees. The current system of data collection and analysis prevents institution-wide

efforts to close the assessment loop. The Assistant Dean for Graduate Programs has engaged in institution-level data analysis in a more centralized manner that will facilitate the implementation of evidence based continuous improvement efforts.

**Moving Forward**

The procedures approach which ESF will use to ensure program quality will be modeled after Cornell's.[1] This approach will be based on milestones and timelines that are codified through a series of forms, which must be approved by the student and/or departmental representatives. Using this approach is supported by ESF's graduate school website (https://www.esf.edu/graduate/graddegreq.htm accessed 17 November 2020), while vastly simpler than Cornell's (https://gradschool.cornell.edu/about/program-metrics-assessments-and-outcomes/learning-assessment/ accessed 25 September 2020), it contains similar information on forms and timing.

Specifically, SUNY ESF graduate students are expected to complete all degree requirements within the following timeframes:

- Full-time Master's: three years
- Part-time Master's: determined in consultation with steering committee based on needs of student.
- Ph.D. Candidates: seven years

Extensions may be granted by submitting a petition for extension of time limit for degree completion.

Program milestones, corresponding forms and typical timelines for completion are found in the Table 1.

[1] We also recognize that with the current financial hardships facing ESF, any proposed graduate program assessment plan must be least cost and built on the foundation of the KISS of Success – Keep it Simple Stupid.

Table 1. Graduate Degree Timelines and Milestones

| Degree | 2A | 3B | Thesis Proposal | 6E/8 | Capstone | 5E/8 |
|---|---|---|---|---|---|---|
| MS | Steering committee appointed during first semester. | Program of study approved by steering committee by 3rd semester | Must be approved by steering committee 2 semesters prior to defense | n/a | Public presentation of capstone seminar on thesis research required prior to the thesis defense. | Successful defense of thesis required at conclusion of study and research program. |
| MLA | Steering committee appointed during first semester. | Program of study approved by steering committee by 3rd semester. All steering committee members should sign the 3B before the end of the student's program. | n/a | n/a | MLA students must complete an integrative experience, participate in the capstone studio during the final semester of the program and disseminate the results of their integrative studies through capstone seminars. | n/a |

| Degree | 2A | 3B | Dissertation Proposal | 6E/8 | Capstone | 5E/8 |
|---|---|---|---|---|---|---|
| Ph.D. | Steering committee appointed during first semester. | Program of study approved by steering committee by 3rd semester | Must be approved by steering committee prior to Candidacy | Candidacy Exam taken when majority of coursework completed. Must be successfully completed within 3 years of matriculation and at least 1 year prior to dissertation defense. | Public presentation of capstone seminar on dissertation research required prior to the thesis defense. | Successful defense of dissertation required at conclusion of study and research program. |

| Degree | 2A | 3B | 6E/8 | Capstone | 5E/8 |
|---|---|---|---|---|---|
| MPS | Steering committee appointed by end of first semester (FT) or when student has taken 12 credits (PT). | Program of study should be approved by steering committee by end of 3rd semester. 3B must be signed by all members of steering committee by last semester (PT). | n/a | Public presentation of capstone seminar on topic chosen in consultation with MP and steering committee | n/a |
| MF | Steering committee appointed by end of first semester (FT) or when student has taken 12 credits (PT). | Program of study should be approved by steering committee by end of 3rd semester and 3B must be signed by all members of steering committee by last semester (PT). | n/a | n/a | n/a |

ESF has not historically nor routinely collected or disseminated data about their graduate programs in a centralized manner, although each department has established their own norms and processes for delivery of quality graduate education. Developing and implementing a institution-wide procedural approach to graduate program assessment, referencing the Cornell University procedure as a model, will facilitate data collection, analysis, and interpretation in a manner that informs continuous improvement processes for graduate programs under a more centralized system, including the alignment of graduate degree timelines at the institutional level rather than at the department level, which will lead to a more effective assessment and continuous improvement process for the Graduate school.

The College has identified five limitations that must be addressed in the process of adopting a procedure-based quality improvement/assurance program for graduate education at ESF. First, while the data are available, they are not contained in a form that is easy to analyze. Limited staff time is currently focused almost exclusively on inputting current and historic data in a consistent form so it can potentially be analyzed and disseminated. Furthermore, formal structures will be developed for the graduate school, in order to inform the College administration, department chairs, graduate program coordinators, and major professors about how the system is performing. Second, responsibility for analyzing the data should be coordinated across the OIGS Office, Assessment Office, and Graduate Program Coordinators from each department. Third, through effective collaboration between the various offices responsible for graduate program assessment, rubrics will be developed and established for institution-wide use; these rubrics should honor assessment work that has been ongoing under the decentralized model and be elastic enough to apply to the variety of degrees and programs involved. Such rubrics will be vital to inform the college administration, department chairs, graduate program coordinators, and major professors of how well the system is performing based on the data that are being collected. Fourth, once the proposed assessment approach is implemented, establishing college-wide mechanisms to review the assessment plan, performance metrics, and implement performance improvements will allow stakeholders to "close the loop" on graduate program assessment. Currently, OIGS's central role in processing, monitoring and coordinating student progress through their programs and in implementing graduate policies and procedures, well situates it to collect and disseminate assessment data and to coordinate and oversee the graduate assessment process. The Assistant Dean has, over the past year and a half, taken a lead in collecting the timeliness of the forms described in Table 1 being completed. These timeliness data can be and will be used to evaluate the procedural efficiency of our graduate programs of completing graduates in a timely manner. In addition, the data collected on forms 6E/8, Proposal, Capstone, and 5E/8 described in Table 1 can be and will be used to evaluate the procedural quality of our graduate programs. The quality is insured by the major professor, graduate steering committee, reader, and defense chair. These data have also been shared with the departments at various times and in various forms. Going forward, we need to more clearly articulate a process for using these data to assess and improve our graduate programs, as well as the important and interconnected roles and responsibilities of the Assistant Dean, Assistant Director, Department Chairs, Graduate Coordinators, IT and others in conducting ongoing assessment and improvement of our graduate programs.

A plan needs to be put forth to address the five concerns identified above. Addressing this full slate of concerns will move ESFs graduate programs forward as well as maintaining college

accreditation. In putting forth this plan we recognize the financial hardships that ESF is under currently.

We propose adopting the following learning proficiencies, based on those found Cornell's graduate school website, to address the third concern.[2]

*Learning Proficiencies for all ESF Graduate Students*

SUNY ESF is dedicated to the study of our environment in all its complexity, from the basic and

Because of this and in order to facilitate the range and depth of graduate education provided at ESF, learning outcomes vary across the graduate academic programs. However, common to these programs is a set of three overarching goals, which characterize the ESF graduate educational experience:

- Doctoral and Master's students are ambassadors for providing environmental solutions and effecting change through exemplary scholarship, teaching and research
- They effectively engage as leaders and stewards of the natural and designed environments through various forms of outreach
- And recognize and seek diversity and inclusion as a source of strength, creativity, and innovation

*Doctoral Proficiencies*

A candidate for a doctoral degree will demonstrate mastery of knowledge and skills in their chosen field and synthesize and create new knowledge, making an original and substantial contribution to the discipline in an appropriate timeframe.

- Make an original contribution to the discipline, which impacts the environment, the individual, society, or ideas
    - Think originally and independently to develop concepts and methods
    - Identify new research opportunities within one's field
- Demonstrate advanced research skills
    - Synthesize existing knowledge, identifying and accessing appropriate resources and other sources of relevant information and critically analyzing and evaluating one's own findings and those of others
    - Master application of existing research methods, techniques, and technical skills
    - Communicate complex information effectively and in multiple ways (including both oral and written), to diverse audiences and in a style appropriate to the discipline
- Demonstrate commitment to advancing the values of scholarship
    - Keep abreast of current advances within one's field and related areas

[2] Appendix A provides a general outline of the five categories of learning for each degree level, defines proficiencies basic to each area of learning, and describes their relationship to one another.

    - Show commitment to personal professional development through engagement in professional societies, publication, and other knowledge transfer modes
    - Participate in creation of an environment that supports learning through teaching, collaborative inquiry, mentoring, or demonstration
- Demonstrate professional skills
    - Adhere to ethical standards in the discipline
    - Listen, give, and receive feedback professionally
    - Show ability to adapt to unexpected needs and opportunities
    - Work effectively as a part of a team
- Demonstrate commitment to ESF's vision that all people have much to contribute and that all perspectives deserve respect
    - Negotiate and resolve conflict with diverse stakeholders to develop new and innovative solutions
    - Support and help create ESF's climate of inclusiveness and diversity as teachers, scholars, and researchers.

*Research Master's Proficiencies*

A candidate for a research master's degree will demonstrate knowledge in the chosen discipline and to synthesize and apply knowledge, making a contribution to the field in an appropriate timeframe.

- Make a contribution to the scholarship of the field.
- Learn advanced research skills
    - Synthesize existing knowledge, identifying, and accessing appropriate resources and other sources of relevant information and critically analyzing and evaluating one's own findings and those of others
    - Apply existing research methods, techniques, and technical skills
    - Communicate both orally and in writing in a style appropriate to the discipline
- Demonstrate commitment to advancing the values of scholarship
    - Keep abreast of current advances within one's field and related areas
    - Show commitment to personal professional development through engagement in college clubs, professional societies, and other knowledge transfer modes
    - Show a commitment to creating an environment that supports learning through teaching, collaborative inquiry, mentoring, or demonstration
- Demonstrate professional skills
    - Adhere to ethical standards in the discipline
    - Listen, give, and receive feedback professionally
    - Work effectively as a part of a team
- Demonstrate commitment to ESF's vision that all people have much to contribute and that all perspectives deserve respect
    - Contribute to ESF's climate of inclusiveness and diversity as teachers, scholars, and researchers.

Procedural data (of the type currently collected by the OGIS) will allow some inferences on the above proficiencies. Additional indicator data should be collected to strengthen these inferences

such as current and historic demographics of graduate students, membership (and the college financially supporting membership) in professional societies, attending (and the college financially supporting attending) conferences, numbers of presentations and conferences, numbers and types of publications resulting from the research, etc. Tables 2 and 3 map the proficiencies and skills listed in Table 1 to process and supporting metrics.

Table 2. M.S. Proficiency Mapping

| **Proficiency or Skill** | **Evidence** | **Process Metric** | **Acceptable Value** | **Supporting Metrics** |
|---|---|---|---|---|
| Scholarship in the field | 1) Identify research opportunities within one's field.<br>2) Complete research project and report findings and implications for further research. | Research proposal accepted.<br>Successful thesis (8A) and defense (5E & Form 8).<br>. | | Number and type of publications.<br>Awards. |
| Advanced research skills | 1) Synthesize existing knowledge, identifying, and accessing appropriate resources and other sources of relevant information and critically analyzing and evaluating one's own findings and those of others.<br>2) Apply existing research methods, techniques, and technical skills<br>3) Communicate both orally and writing in a style | Capstone presentation.<br>Successful thesis defense (5E & 8).<br>Thesis approved (8A)<br>M.S. awarded. | | Publications<br>Presentations<br>Classes taught |

| | | | | |
|---|---|---|---|---|
| | appropriate to the discipline | | | |
| Commitment to Scholarship | Keep abreast of current advances within one's field and related areas.<br>Show commitment to personal professional development through engagement in college clubs, professional societies, and other knowledge transfer modes.<br>Show a commitment to creating an environment that supports learning through teaching, collaborative inquiry, mentoring or demonstration | | | Conferences attended and conference presentations.<br>Professional organization membership.<br>Publications - number and type.<br>Classes taught.<br>Students mentored.<br>Seminars |
| Professional skills | 1)Adhere to ethical standards in the discipline<br>2) Listen, give, and receive feedback professionally | Annual meetings with steering committee.<br>Capstone seminar.<br>Thesis defense. | | Co-authored papers.<br>Presentation rubric?<br>Graduate Colloquium attendance. |

| | | | | |
|---|---|---|---|---|
| | 3) Work effectively as a part of a team | | | |
| Diversity and Inclusion | 1) Contribute to create ESF's climate of inclusiveness and diversity as teachers, scholars and researchers. | | | Study, work or research abroad.<br>Students receiving Title IX and Anti-harassment/anti-discrimination training.<br>Research relevant to DEI issues or involving underserved populations and/or inequalities.<br>Participation in outreach activities relevant to advancing equity and access to higher ed. |

Table 3. Ph.D. Proficiency Mapping

| **Proficiency or Skill** | **Evidence** | **Process Metric** | **Acceptable Value** | **Supporting Metrics** |
|---|---|---|---|---|
| Contribute substantively to discipline | 1) Think originally and independently to develop concepts and methods.<br>2) Identify new research opportunities within one's field. | Research proposal accepted.<br>Successful dissertation (8A) and defense (5E & Form 8). | | Number and type of publications.<br>Awards. |
| Research skill development | 1) Synthesize existing knowledge, identifying and accessing appropriate resources and other sources of relevant information and critically analyzing and evaluating one's own findings and those of others.<br>2) Master application of existing research methods, techniques, and technical skills<br>3) Communicate complex information effectively and in multiple ways (including both oral and written), to diverse audiences and in | Candidacy (6F & 8)<br>Capstone presentation.<br>Successful dissertation defense (5E & 8).<br>Dissertation approved (8A)<br>Ph.D. awarded | | Publications<br>Presentations<br>Classes taught<br>Course taught including course evaluations |

| | | | | |
|---|---|---|---|---|
| | a style appropriate to the discipline | | | |
| Commitment to Scholarship | Keep abreast of current advances within one's field and related areas.<br>Show commitment to personal professional development through engagement in professional societies, publication, and other knowledge transfer modes.<br>Participate in creation of an environment that supports learning through teaching, collaborative inquiry, mentoring, or demonstration | | | Conferences attended and conference presentations.<br>Professional organization membership.<br>Publications - number and type.<br>Classes taught.<br>Students mentored.<br>Seminars |
| Professional skills | 1)Adhere to ethical standards in the discipline<br>2) Listen, give, and receive feedback professionally<br>3) Show ability to adapt to unexpected needs and opportunities | Annual meetings with steering committee.<br>Capstone seminar.<br>Candidacy exam.<br>Dissertation defense. | | Co-authored papers.<br>Presentation rubric?<br>Graduate Colloquium attendance. |

| | | | | |
|---|---|---|---|---|
| | 4) Work effectively as a part of a team | | | |
| Diversity and Inclusion | 1) Negotiate and resolve conflict with diverse stakeholders to develop new and innovative solutions<br>2) Support and help create ESF's climate of inclusiveness and diversity as teachers, scholars and researchers. | | | Study, work or research abroad. Students receiving Title IX and Anti-harassment/anti-discrimination training. Research relevant to DEI issues or involving underserved populations and/or inequalities. Participation in outreach activities relevant to advancing equity and access to higher ed. |

Relevant rubrics will support interpreting these procedural data to improve the system by providing mutually agreed upon benchmarks.[3] For example, making sure all the required forms are turned-in in a timely manner or time to completion is within defined norms. These could be as simple as: greater than 90% of graduates required forms turned-in in a timely manner or 90% complete their degree within the defined norms is successful; 89% to 80% is adequate; and below 79% is inadequate. Additional metrics (and accompanying benchmarks) to be developed and assessed may include annual measurements of candidacy exam completion, including number of students achieving candidacy, and success/failure rates for written and oral exam components by degree program. Similar metrics may also be assessed for Master's thesis and Ph.D. dissertation defense completions. Methods for "closing the loop" on each these assessments would focus on improving mentoring for faculty and graduate students to address performance levels on an as needed basis.

[3] The Degree Qualification Profile (https://www.luminafoundation.org/files/resources/dqp.pdf accessed 30 September 2020) provides examples of rubrics for undergraduate and graduate level assessment.

Currently, within OIGS there is no individual tasked with accomplishing graduate program assessment and addressing the remaining four concerns identified above. Based on recent history, increasing college administrative staff is viewed skeptically by the college community. Additional resources should be provided to OIGS (i.e. additional staffing of approximately .50FTE) to help implement new Graduate Program Assessment Plan. It is recommended these resources be secured within calendar year 2021.

The primary lead within OIGS will be provided by the Assistant Dean of Graduate Studies, working in coordination with Assistant Director of Assessment and Institutional Research (Assistant Director) to develop a detailed procedural assessment plan outlining the procedures, data, and rubrics for assessing the graduate programs and for "closing the loop" to improve the graduate programs. We recognize that the Assistant Dean and Assistant Director, will not be able to accomplish this task without significant input and support from the college community. Thus, an ad hoc college faculty committee tasked with this responsibility will be formed, co-chaired by the Assistant Dean, and faculty member or the Assistant Director. We recommend this task be accomplished in calendar years 2021 to 2023. Examples that could help are https://gradschool.cornell.edu/about/program-metrics-assessments-and-outcomes/facts-figures/ and https://gradschool.cornell.edu/about/program-metrics-assessments-and-outcomes/doctoral-career-outcomes/ accessed 25 September 2020.

The Assistant Dean and additional staff person will also work with college Information Systems staff to identify and propose a tool to analyze the collected assessment data drawn from Slate, Banner, Degree Works, and/or additional graduate student data and records systems, and provide reports to OIGS, the college administration, department chairs, graduate program coordinators, and major professors and display these data in a dashboard located on appropriate college graduate school web site. We recommend this task be accomplished in calendar years 2021 to 2023. Examples that could help are https://gradschool.cornell.edu/about/program-metrics-assessments-and-outcomes/facts-figures/ and https://gradschool.cornell.edu/about/program-metrics-assessments-and-outcomes/doctoral-career-outcomes/.

The Assistant Dean and additional staff person will compile the first set of reports containing the analysis and interpretation to be distributed to the college administration, OIGS, department chairs, graduate program coordinators, and major professors no later than calendar year 2023. A close the loop analysis will be prepared by the Assistant Dean, Assistant Director and ad hoc committee, in concert with college administration, OIGS, department chairs, graduate program coordinators, and major professors no later than calendar year 2024. Any proposed changes will be brought to the college community, discussed, and, those accepted, implemented in calendar year 2024 to 2025. After this assessment plan is in place and completed the first time, a continuous process will be put in place including ongoing collection, organization and analysis of data, dissemination of reports, and generation, selection and implementation of improvements.

**Appendix A**

The Cornell proficiencies are consistent with Articulating Learning Outcomes in Doctoral Education (https://cgsnet.org/publication-pdf/4923/ArticulatingLearningOutcomesinDoctoralEducationWeb.pdf accessed 30 September 2020). A more specific articulation of articulating learning outcome is provided by Degree Quality Profiles (https://www.luminafoundation.org/files/resources/dqp.pdf accessed 30 September 2020). This is outline briefly here.

Specialized Knowledge

- Elucidates the major theories, research methods and approaches to inquiry and schools of practice in the field of study, articulates their sources and illustrates both their applications and their relationships to allied fields of study.
- Assesses the contributions of major figures and organizations in the field of study, describes its major methodologies and practices and illustrates them through projects, papers,
- exhibits or performances.
- Articulates significant challenges involved in practicing the field of study, elucidates its leading edges and explores the current limits of theory, knowledge and practice through a project that lies outside conventional boundaries.

Broad and Integrative Knowledge

- Articulates how the field of study has developed in relation to other major domains of inquiry and practice.
- Designs and executes an applied, investigative or creative work that draws on the perspectives and methods of other fields of study and assesses the resulting advantages and challenges of including these perspectives and methods.
- Articulates and defends the significance and implications of the work in the primary field of study in terms of challenges and trends in a social or global context.

Intellectual Skills

- *Analytical Inquiry*: Disaggregates, reformulates and adapts principal ideas, techniques or methods at the forefront of the field of study in carrying out an essay or project.
- *Use of Information Resources*: Provides evidence (through papers, projects, notebooks, computer files or catalogues) of contributing to, expanding, evaluating or refining the information base within the field of study.
- *Engaging Diverse Perspectives*: Investigates through a project, paper or performance a core issue in the field of study from the perspective of a different point in time or a different culture, language, political order or technological context and explains how this perspective yields results that depart from current norms, dominant cultural assumptions or technologies.
- *Ethical Reasoning*: Articulates and challenges a tradition, assumption or prevailing practice within the field of study by raising and examining relevant ethical perspectives through a project, paper or performance. Distinguishes human activities and judgments particularly subject to ethical reasoning from those less subject to ethical reasoning.
- *Quantitative Fluency*: Uses logical, mathematical or statistical methods appropriate

- to addressing a topic or issue in a primary field that is not for the most part quantitatively based. Or, articulates and undertakes multiple appropriate applications of quantitative methods, concepts and theories in a field of study that is quantitatively based. Identifies, chooses and defends the choice of a mathematical model appropriate to a problem in the social sciences or applied sciences.
- *Communicative Fluency*: Creates sustained, coherent arguments or explanations summarizing his/her work or that of collaborators in two or more media or languages for both general and specialized audiences.

Applied and Collaborative Learning

- Creates a project, paper, exhibit, performance or other appropriate demonstration reflecting the integration of knowledge acquired in practicum, work, community or research activities with knowledge and skills gleaned from at least two fields of study in different segments of the curriculum. Articulates the ways in which the two sources of knowledge influenced the result.
- Designs and implements a project or performance in an out-of-class setting that requires the application of advanced knowledge gained in the field of study to a practical challenge, articulates in writing or another medium the insights gained from this experience, and assesses (with appropriate citations) approaches, scholarly debates or standards for professional performance applicable to the challenge.

Civic and Global Learning

- Assesses and develops a position on a public policy question with significance in the field of study, taking into account both scholarship and published or electronically posted positions and narratives of relevant interest groups.
- Develops a formal proposal, real or hypothetical, to a non-governmental organization addressing a global challenge in the field of study that the student believes has not been adequately addressed.
- Proposes a path to resolution of a problem in the field of study that is complicated by competing national interests or by rival interests within a nation other than the U.S.