MAJOR PROGRAM ASSESSMENT PLAN

Great Lakes Environmental Science M.A. (MA-AS GEE)

Great Lakes Center

Student Learning Goals/Objectives	Course Resulting in Outcomes/Goals	Activities Resulting in Outcomes/Goals	Measures/Criteria/Rubrics of Student Achievement of Goals/Objectives	Timetable
1) Demonstrate analytical skills required to interpret and evaluate research literature.	GLC 535, GIS course, BIO 670, GLC 695, plus electives	Written tests, assignments, projects (individual and group), papers, participation in class discussions, thesis research	Students demonstrate subject area mastery in GLC 695 Master's Thesis and each thesis will be evaluated using a common rubric (see attached).	Spring
2) Demonstrate proficiency in scientific writing.	GLC 535, GIS course, BIO 670, GLC 695, plus electives	Written tests, assignments, projects (individual and group), papers, participation in class discussions, thesis research	Students demonstrate subject area mastery in GLC 695 Master's Thesis and each thesis will be evaluated using a common rubric (see attached).	Spring
3) Demonstrate proficiency for effective oral communication of scientific information.	GLC 535, GIS course, BIO 670, GLC 695, plus electives	Oral presentations in classes, participation in class discussions, thesis proposal presentation, thesis defense seminar presentation	Students demonstrate subject area mastery in GLC 695 Master's Thesis. Students must orally defend their thesis during the thesis defense seminar and each defense will be evaluated using a common rubric (see attached).	Spring
4) Plan and conduct research using accepted standards for ethical science.	GIS course, BIO 670, GLC 695, plus electives	Written tests, assignments, projects (individual and group), papers, participation in class discussions, thesis research	Students demonstrate subject area mastery in GLC 695 Master's Thesis and each thesis will be evaluated using a common rubric (see attached).	Spring

Process/procedures for making changes if suggested by assessment results:

GLES-affiliated faculty will meet as a group during the semester following assessment to discuss the summary of the student learning outcome assessment. Based on results of student performance with regard to each goal/objective, the faculty will identify strengths and weaknesses in the curriculum. Courses and/or curriculum will be revised if necessary; or, the goals/objectives might be modified.

PROGRAM SLOs and CURRICULUM MAP

GLES (MA-AS GEE)

Outcomes	GLC 535	GEG 525, 528, or 529	BIO 670	GLC 695 Thesis
Demonstrate analytical skills required to interpret and evaluate research literature.	R	R	R	M
Demonstrate proficiency in scientific writing.	R	R	R	M
Demonstrate proficiency for effective oral communication of scientific information.	R	R	R	M
Plan and conduct experimental research using accepted standards for ethical science.		R	R	M

R = Reinforced; M= Mastery Demonstrated

Course titles: GLC 535 Great Lakes Ecosystem Science; GEG 525 Fundamentals of GIS; GEG 528 Environmental Assessment & Planning Applications in GIS; GEG 529 Advanced Topics in GIS; BIO 670 Biological Data Analysis; GLC 695 Master's Thesis

GLES Thesis (MA) and Internship Paper (MS) Rubric

	Satisfactory with Distinction	Satisfactory	Unsatisfactory
Literature review	Important issues or ideas were raised. The gaps in current knowledge were clearly identified and significant directions and approaches that fill these gaps were identified. The literature review was clearly connected to the study's methodology and measures. Subheadings were used effectively and transitions were provided between subheadings. Literature review was comprehensive and extensive.	Related literature was credibly summarized. The gaps in current knowledge were identified and directions and approaches that fill these gaps were identified. The literature review was connected to the study's methodology and measures. Sub-headings were effectively used to categorize related research. Literature review was comprehensive in both depth and scope.	Related literature was summarized. The gaps in current knowledge and approaches that fill these gaps were not identified. The literature review was minimally connected to the study's methodology and measures. Related research was not synthesized or integrated. Sub-headings were not used or used incorrectly. Literature review was incomplete and failed to explore the depth and scope of the available literature.
Methodology	The research design and method of analysis reflected a sophisticated understanding of the research problem.	The research design and method of analysis were appropriate for the research problem.	The research design and method of analysis were not appropriate for the research problem.
Results	The study's results were thoroughly and logically explained. The results were directly related to the research question(s) or hypothesis(es) and were reported in logical segments. Data tables and figures were clearly labeled, accurate, and well designed for ease of understanding. The results section had maximum clarity.	The results were related to the research question(s) or hypothesis(es). The reporting of results followed a logical sequence. Data tables and figures were clearly labeled and accurately reported the findings.	The study's results section was only partially related to the research question(s) or hypothesis(es). There was no sequence to the reporting of the results and data tables and figures lack clarity.
Discussion	The discussion was supported by related literature, findings were compared and contrasted, and theoretical connections were made to the research results.	The discussion was supported by related literature and findings were compared and contrasted to other studies included in the review section. Results were	The discussion was minimally supported by related literature. Findings were summarized but not interpreted (writer simply repeats the findings in the results section). The

	Implications and future directions were identified.	placed in context and implications for future research are identified.	discussion failed to place the findings in context or include implications for future studies.
Content knowledge	The thesis/project excelled in the organization and representation of ideas related to the question. Depth of understanding was apparent and clearly related to a topic(s) in environmental science. The response synthesized theoretical concepts and coherently applied them to the question's specific context. The research design aligned with the research question and provided more than one method of analyzes.	The thesis/project was organized, carefully focused and clearly outlined the major points related to the question. Ideas were logically arranged to present a sound scholarly argument. Depth of understanding related to a topic(s) in environmental science was evident. Theory was accurately applied contextually to the question. Research design aligned with the research question.	Ideas presented closely follow conventional concepts with little expansion and development of new directions. Ideas and concepts were generally and satisfactorily presented although lapses in logic are apparent. Theory was minimally applied to the context of the question. The research design did not align with the research question.
Mechanics	The thesis/project was essentially error free in terms of mechanics. Writing flowed smoothly from one idea to another and led the reviewer through an orderly discussion of the topic. Transitions effectively established a sound scholarly argument and aided the reviewer in following the writer's logic.	While there may have been minor errors, the thesis/project followed normal conventions of spelling and grammar throughout. Errors did not significantly interfere with topic comprehensibility. Transitions were effectively used which help the reviewer move from one point to another.	Grammatical conventions were generally used, but inconsistency and/or errors in their use resulted in weak, but still apparent, connections between topics in the formulation of the argument. There were poor uses of transitions.

Adapted from California State University, Fresno, Department of Biology and "Final Thesis Project Rubric" from Winthrop University, Rock Hill, South Carolina.

GLES (MA and MS) Oral Communication Rubric

	Exceeds Standard	**Meets Standard**	**Approaching Standard**	**Does Not Meet Standard**
Organization	Well organized presentation with clear integration of content.	An organized presentation with a clear delineation of research objective/question, methodology, and significance of results.	Presentation included a description of the research objective/question, methodology, and significance of results.	Failed to describe the research objective/question, methodology, or the significance of the results.
Content	Displayed real insight into the topic being investigated and has original suggestions for improvement of the project or further investigations. Explained and expanded on information in slides during the presentation. Spoke about content with confidence and authority.	Displayed a good understanding of the topic being investigated. Spoke about content with confidence.	Demonstrated a basic understanding of the topic being investigated.	Demonstrated a poor/absent understanding of the topic being investigated. Numerous errors in usage of terminology or errors of fact which reflect a lack of understanding of the research project and results.
Presentation style	Oriented audience to tables, figures and graphs and explicitly led them through the analysis. Spoke clearly. Established eye contact with audience throughout the presentation.	Oriented audience to tables, figures and graphs and led them through the analysis. Spoke clearly with a few references to notes. Established eye contact with audience throughout the presentation, although may have displayed some evidence of nervousness.	Visual aids included research objective/question, methods, data, and results significance, but presenter failed to actively refer to visual aids during much of the presentation. Spoke audibly, but read much of the presentation verbatim from notes or off slides and/or used distracting speech pattern ("like, you know, uh", etc.) numerous times Only occasionally made eye contact with audience.	Visual aids failed to summarize research objective/question, methods, or data. Spoke quietly or mumbled such that much of the presentation was inaudible and failed to make eye contact with audience.
Interaction	Answered questions clearly and directly.	Answered questions clearly.	Answered questions reasonably well, although knowledge of the topic beyond the immediate project was not demonstrated.	Answers to questions demonstrated insufficient knowledge of topic.

GLES (MA and MS) Oral Communication Presentation Evaluation Form

Presenter _____

Categories: Rank each category from Excellent (4) to Poor (1)

ORGANIZATION	4	3	2	1
Clearly states the goal or objective for the presentation				
Summarizes and distills main points at the end of the presentation				
Appears well prepared for the presentation				

CONTENT	4	3	2	1
Includes visual aids, including figures, graphs, and tables				
Integrates text material into presentations				
Presents background of ideas and concepts				
Explains difficult terms, concepts, or problems				
Covers the main parts of the thesis/project (objectives/goals, methods, results, discussion, conclusions)				
Speaks about content with confidence and authority				

PRESENTATION STYLE	4	3	2	1
Uses visual aids effectively by orienting audience to figures, graphs, and tables, etc.				
Speaks audibly and clearly				
Speech fillers, for example, "ok, um, ah" are not distracting				
Communicates a sense of enthusiasm and excitement toward the content				
Speech is neither too formal nor too casual				
Establishes and maintains eye contact with the audience, not the screen or windows				

INTERACTION	4	3	2	1
Answers questions clearly and directly				
Listens carefully to audience comments and questions				
Responds confidently to inquiries for additional information				
Is able to admit error and/or insufficient knowledge				
How would you rank the speaker's overall presentation effectiveness?				

* Blanks = unable to judge

Comments:

Evaluation form based on the standardized form developed by M. Weimer, J. Parrett, and M.M. Kerns, editors of How Am I Teaching, published by Magna Publications, Inc., Madison WI