General Education Assessment Results: Synthesis
George Mason University

I.   Assessment Overview

The synthesis category of Mason's General Education Program has over 60 approved upper level courses. The assessment was conducted in spring, 2010, when 44 courses[1] were offered with a total enrollment of 2,438 students. The course/section enrollment ranged from one student (ten courses/sections) to 50 students. Course selection was conducted in November 2009, following three principles:

- Faculty members who participated in the general education assessment in social and behavioral sciences and global understanding in fall 2009 were exempted from the synthesis assessment.
- Synthesis courses/sections with an enrollment fewer than three students were exempted.
- All the remaining courses were eligible to participate in the assessment. For courses with multiple sections, however, one section was randomly selected to participate in the portfolio assessment[2].

Information sessions were conducted for the selected faculty members in December 2009, followed by individual consultations for those who did not attend the group sessions. Each selected faculty member was asked to create a course portfolio that consisted of 1) a summary sheet, 2) course syllabus, 3) selected course assignments, 4) samples of student work, and 5) the faculty member's reflection. The portfolio was due the end of May, two weeks after the semester ended. In addition, a learning outcomes survey was conducted at the end of the spring semester among all students enrolled in a synthesis course. The survey focused on course emphasis on each general education synthesis learning outcome (see Section III below for these outcomes). Due to a low survey response rate (23%), the results were not included as part of the course portfolio review.

Portfolio review was conducted in fall 2010. Reviewers were members of the University General Education Committee and assessment professionals. All reviewers went through a training in which they had in-depth discussions about the review criteria using one portfolio as an example. Then, the reviewers broke into teams of two and worked on their assigned portfolios. The reviewers worked independently and consulted each other as needed. Each portfolio received two sets of ratings.

II.   Assessment Scope Summary

1. Total number of general education synthesis courses offered in spring 2010: **44** courses (**99** sections) by **84** faculty members from **nine** colleges/academic units
2. Total number of students enrolled: **2,438** individuals, among them 32 students took more than one synthesis course
3. Student survey respondents: **553** (23%)
4. Total number of courses/sections selected for assessment: **33**

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[1] See Appendix One for the synthesis course offerings in spring 2010 and participating courses.

[2] The sections not selected for portfolio assessment were asked to participate in a companion critical thinking assessment, for which, faculty members selected a course assignment that best demonstrated students' critical thinking competence and submitted work samples from 4-6 students randomly selected by the Office of Institutional Assessment. The results of the critical thinking assessment can be found online at: https://assessment.gmu.edu/StudentLearningCompetencies/Critical/index.html

5. Total portfolios collected: **26** portfolios representing 27 courses. Two portfolios were collected from GOVT 490 and one combined portfolio was submitted for three courses (HEAL 490, TOUR 490 and SPMT 490)[3]. The faculty members who developed the portfolios taught a total number of **924** students (38% of the total synthesis enrollment).
6. Total reviewers: 11 (each portfolio received 2 ratings)
7. Total student work samples reviewed: **118** (a majority of which came from students randomly selected by the Office of Institutional Assessment)

III. Learning Outcomes

The purpose of the synthesis course is to provide students with the opportunity to synthesize the knowledge, skills and values gained from the general education curriculum. Synthesis courses strive to expand students' ability to master new content, think critically, and develop life-long learning skills across the disciplines. While it is not feasible to design courses that cover "all" areas of general education, synthesis courses should function as a careful alignment of disciplinary goals with a range of general education learning outcomes.

A general education synthesis course must address outcomes 1 and 2, and at least one outcome under 3. Upon completing a synthesis course, students will be able to:

SLO 1. Communicate effectively in both oral and written forms, applying appropriate rhetorical standards (e.g., audience adaptation, language, argument, organization, evidence, etc.)

SLO 2. Connect issues in a given field to wider intellectual, community or societal concerns using perspectives from two or more disciplines

SLO 3. Apply critical thinking skills to:

SLO 3-a. Evaluate the quality, credibility and limitations of an argument or a solution using appropriate evidence or resources, OR,

SLO 3-b. Judge the quality or value of an idea, work, or principle based on appropriate analytics and standards

(Approved by the University General Education Committee on October 14, 2009)

IV. Course Emphasis

As shown in Table 1, almost all courses addressed learning outcomes 1-a, 1-b, 2 and 3-a; in addition, three fourths of the courses addressed learning outcome 3-b. In all but one course, students were asked to submit a paper or other forms of written product (portfolio, artistic statement, etc.) prepared individually or by a team and present their work inside or outside of class.

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[3] HEAL 490, TOUR 490 and SPMT 490 are internship courses for students of the major. Overseen by one faculty member, the three courses have equivalent learning outcomes, follow the same curricular structure and use the same portfolio assignment as the primary assessment tool. The combined course portfolio includes three syllabi, assignment descriptions, randomly selected work samples from three courses, and one faculty reflection.

Table 1. Which general education synthesis learning outcomes does the faculty member intend to address in the course/section?

	Identified		Not Identified	
	Count	%	Count	%
SLO 1-a: Communicating effectively in *oral* forms, applying appropriate rhetorical standards	49	94%	3	6%
SLO 1-b: Communicating effectively in *written* forms, applying appropriate rhetorical standards	50	96%	2	4%
SLO 2: Connect issues in a given field to wider intellectual, community or societal concerns using perspectives from two or more disciplines	47	90%	5	10%
SLO 3-a: Apply critical thinking skills to evaluate the quality, credibility and limitations of an argument or a solution using appropriate evidence or resources	48	92%	4	8%
SLO 3-b: Apply critical thinking skills to judge the quality or value of an idea, work, or principle based on appropriate analytics and standards	39	75%	13	25%

* Count indicates the count of ratings, not the count of portfolios. Each portfolio was rated twice. The counts of "identified" and "not identified" categories add up to 52 for each row.

The reviewers found that written communication (SLO 1-b) and critical thinking (SLO 3-a and 3-b) were addressed most successfully: "outstanding" accounted for over 60% and "good" accounted for over 20% of the ratings. For oral communication (SLO 1-a), 39% of the ratings were "outstanding" and 39% were "good." Outcome 2, "connecting issues in a given field to wider intellectual, community or social concerns using perspectives from two or more disciplines," received mixed ratings: two thirds of the ratings were either "outstanding" or "good," 12% were "fair," and 16% were "poor" – the most substantial "poor" ratings of all outcomes. Reviewers found that some courses, although studying significant issues in its own field, were weak in incorporating perspectives from multiple disciplines.

Figure 1. How well are the intended learning outcomes addressed in the course?*
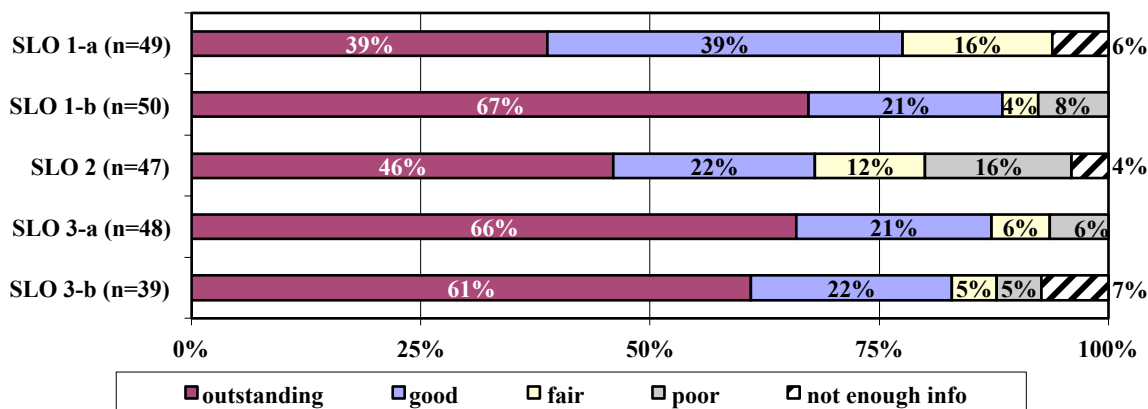

* The count (n) for each bar in the figure is not the same because, if a learning outcome was not addressed in the course, the reviewers would not rate how well the outcome was addressed.

At the end of the spring 2010 semester, a learning outcomes survey was conducted among all students enrolled in a synthesis course. Students were asked to rate the course's contribution to their knowledge and skills in the synthesis learning outcomes. The survey had a low response rate of 23% and the results are presented in Figure 2. Three out of four respondents found their synthesis courses contributed to their

critical thinking skills (SLO 3-a and 3-b) "very much" or "quite a bit." Almost 75% of the respondents selected "very much" or "quite a bit" for "connecting issues in a given field to wider intellectual, community or social concerns using perspectives from two or more disciplines." Oral and written communication outcomes were rated relatively lower than other outcomes, with 60-64% of the responses being "very much" or "quite a bit." These findings are consistent with the survey results reported from the Graduating Senior Surveys[4] conducted from 2005 to 2008.

Figure 2. _**Student Perception: To what extent has this course contributed to your knowledge and skills in the following areas? Please note that some of these goals may NOT be addressed in your course. In those cases, please check "not applicable."***_
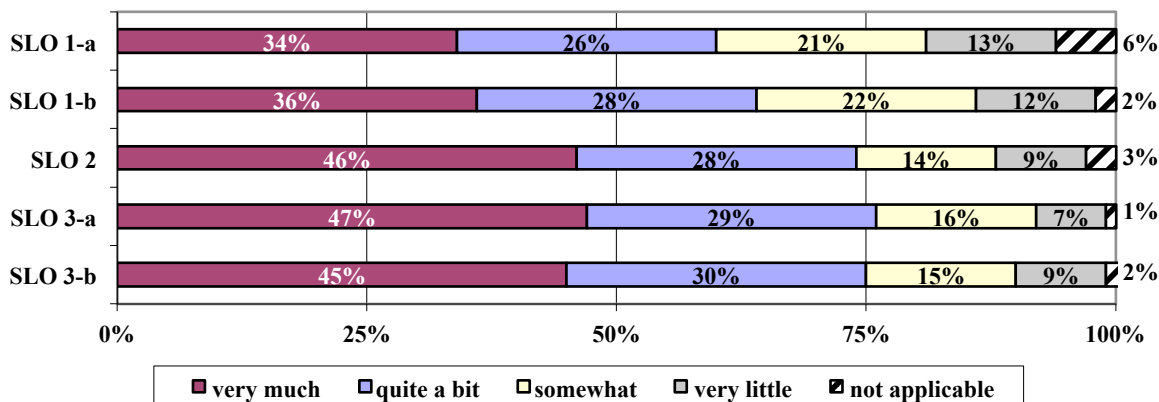
Note: the survey was conducted among all students who were enrolled in a general education synthesis course, many of whom were taught by faculty members who did NOT participate in the portfolio assessment. As noted above, although the survey has a low response rate, the findings are consistent with those reported from four graduating senior surveys. For the synthesis assessment, course level survey results were not distributed to portfolio reviewers.

V. Student Work Samples

Faculty members were instructed to submit up to three course assignments/ projects with their portfolio, for which they provided descriptions of the assignment, instructions to students, and, if applicable, a grading guide or rubric. From the three assignments, faculty members selected one and provided samples of student work. Depending on the course enrollment, the Office of Institutional Assessment did a random sampling of 4-6 students in each assessed course/section. Faculty members submitted one work sample from each randomly selected student and, if they chose to, an additional sample from a faculty self-selected student. A total of 118 student work samples were collected, a majority of which were completed by individual students and the others by student teams. The work samples came in several forms – research papers, short response papers, projects, portfolios, PowerPoint presentations, etc. No exam papers were submitted as evidence of student learning in synthesis.

As shown in Table2, the reviewers found that the assignments, from which the work samples came, were most likely to address written communication (SLO 1-b), connecting issues using multiple perspectives

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[4] The Graduating Senior Survey is conducted by the Office of Institutional Assessment. Students complete the survey online at the time they file for graduation or during their last semester at Mason. The survey has a high response rate of 65-92% over the years. The Graduating Senior Surveys conducted between 2005-2008 included a set of questions about students' experience in synthesis courses. The survey results are available online at: https://assessment.gmu.edu/Results/GraduatingSenior/senior.html.

(SLO 2) and critical thinking (SLO 3-a). The reviewers judged that a majority of the assignments gave students the opportunity to demonstrate their competence in the intended outcomes: "very much" accounting for 62% of the ratings and "quite a bit" 12% (see Figure 3).

Table 2. Intended Synthesis Learning Outcome(s) Addressed in the Selected Assignment

	Addressed in the Selected Assignment	
	Count	%
SLO 1-a: Communicating effectively in *oral* forms, applying appropriate rhetorical standards	18	35%
SLO 1-b: Communicating effectively in *written* forms, applying appropriate rhetorical standards	48	92%
SLO 2: Connect issues in a given field to wider intellectual, community or societal concerns using perspectives from two or more disciplines	43	83%
SLO 3-a: Apply critical thinking skills to evaluate the quality, credibility and limitations of an argument or a solution using appropriate evidence or resources	43	83%
SLO 3-b: Apply critical thinking skills to judge the quality or value of an idea, work, or principle based on appropriate analytics and standards	32	62%

* Count indicates the count of ratings, not the count of portfolios. The percentage was calculated on a total of 52 ratings.

Figure 3. To what extent does the assignment give students the opportunity to demonstrate their competence in the intended outcome(s)? (52 ratings)
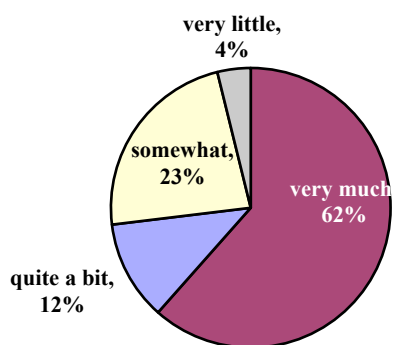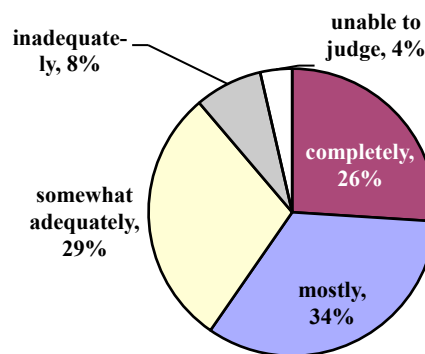

Figure 4. How fully do the student work samples manifest the intended outcomes? (a total of 223 ratings)

The reviewers read through students' work and evaluated whether the samples manifested the intended outcomes. Sixty percent of the reviewed work samples either "completely" or "mostly" demonstrated the intended outcomes, another 29% "somewhat adequately." "Inadequate" and "unable to judge" ratings accounted for 12% (see Figure 4). When analyzed by class level, the average rating for work samples collected from 300-level courses was slightly higher than the average rating for samples from 400-level courses, but the difference was not statistically significant (see Table 3).

Table 3. Ratings of Student Work Samples by Class Level

		completely	mostly	somewhat adequately	inadequately	unable to judge	Mean*
Course Level	300-level (77 ratings)	38%	27%	29%	6%	0%	2.96
	400-level (118 ratings)	20%	37%	29%	8%	5%	2.72
	Total (223 ratings)	26%	34%	29%	8%	4%	2.81

* Mean is calculated on a 4-point scale: 4=completely, 3=mostly, 2=somewhat adequately, and 1=inadequately. "Unable to judge" was excluded.

VI. Overall Ratings

Of the five general questions shown in Figure 5, half or over half of the ratings were "outstanding" for four items: <u>appropriateness of course materials</u>, <u>course structures and procedures contributing to students' achievement of synthesis outcomes</u>, <u>appropriateness of the assignments or assessment</u>, and <u>congruence of the synthesis learning outcomes</u> with the course content and goals. <u>Articulation of the general education learning outcomes for students</u> was rated the lowest: "outstanding" and "good" ratings accounting for 58% and "poor" ratings accounting for 35%.

Figure 5. Given the mission of the General Education program, please rate the course in the following categories:
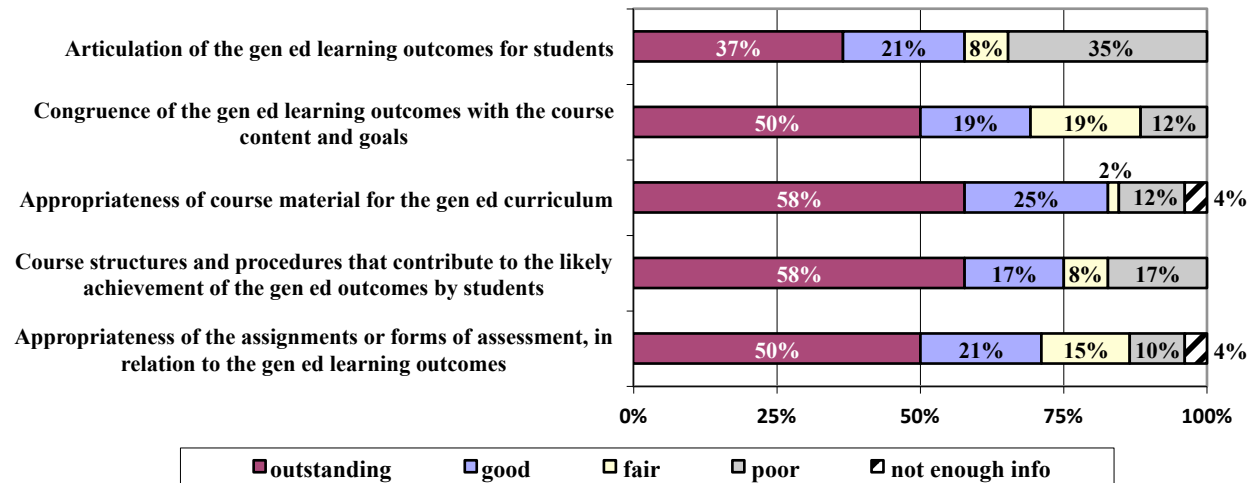
On the overall effectiveness of the course in addressing the intended synthesis learning outcomes (Figure 6), "outstanding" ratings accounted for 48% and "good" ratings accounted for 23%. The majority of the students, as reported from the learning outcomes survey (Figure 7), felt that the courses had contributed to their knowledge and skills in synthesis: 35% selected "very much" and 33% selected "quite a bit."

Figure 6. <u>Reviewers</u>: Overall, how well does the course address the intended synthesis learning outcomes?
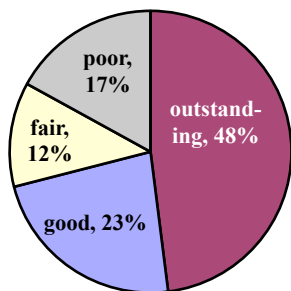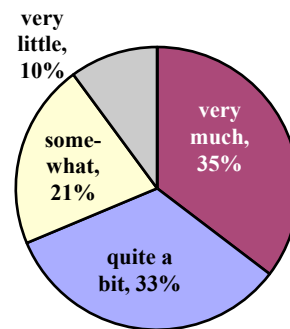
Figure 7. *Student Perception: To what extent has this course contributed to your knowledge and skills in synthesis?*

VII.   Examples of Reviewers' Comments

The reviewers were given an opportunity to comment on features of the course and provide recommendations. The following presents selected verbatim comments:

1. **What elements/features from the course would you recommend to other faculty members who also teach general education courses in Synthesis?**

    *   [Recommended features include:] 1) Use of high quality videos [Bill Clinton's series on Russia] as required readings. 2) Ranking the take home questions by quality--which is in itself evidence of critical thinking. 3) Having students go to lectures and performance in DC related to the topic of the class [takes advantage of the cultural theme]. 4) Breadth of topics so that students have a breadth of exposure from film to dance. 5) Adapting the university rubric for assessing oral communication to the class. 6) Having a strong integration of history, politics, and the arts. 7) Putting on the syllabus the synthesis outcomes and the assessment statement.

    *   Across the assignments, there is encouragement and guidance to evaluate sources critically, integrate evidence and argument, and express conclusions coherently. I [the reviewer] can see how the three assignments work together to create a mosaic of analytical development.

    *   Grappling with some of the key legal and ethical issues of our time makes for fascinating reading-- I really enjoyed reading these papers, even the less successfully argued ones. My "takeaway" from this is that students will rise to the level of the questions we ask of them.

    *   This course clearly does an excellent job of meeting the oral and written communication requirements and I would recommend a portfolio approach as a best-practice for the evaluation of synthesis course work.

    *   Drawing on the different disciplinary perspectives via experience of a performance and by having a panel discussion with experts from several fields does a good job of helping to make explicit the way that the course meets SLO 2 (which is often the most difficult outcome to meet).

    *   The variety of activities, all tying together the overall analysis of (health care) issues, but each focused on a different aspect of the overall topic was well done (i.e., the use of multiple modes, each covering a different topic, but overall meeting the objectives/outcomes of the course).

    *   The quality and challenge level of the readings and assignments are very high, and the students clearly responded with strong critical thinking in their responses. I think the small-group "free for all" assignment, which was a late innovation to meet the oral communication outcome, is potentially an excellent vehicle though admittedly harder to use as a formal assessment tool, and I commend the instructor for the creativity and time commitment that it represents.

    *   Concentration on evaluation of sources and marshalling appropriate evidence around different aspects of an argument are terrific synthesis tools.

    *   I very much appreciated his [the instructor's] reflection statement and it was clear that he had put much thought into each of the three of the four course projects and how each could potentially meet all or most of the synthesis requirements. He re-stated these learning goals in the sample "Project 1" guidelines submitted and I will assume that other project directions included them since his reflective statement talks of them. For other faculty members, it was a nice example of how to articulate how a specific course project met the objectives.

    *   The project for this course is explicitly interdisciplinary, and this is reinforced in assignment guidance and feedback.

- Instructor uses a "mastery system" in which students are able to use feedback to rewrite their assignments. This is a useful way to support student learning.

- The debate is an excellent way to get students to consider multiple perspectives. The Reaction Papers also give students an opportunity to demonstrate their ability to consider more than one perspective.

- I really liked the way he used the first two weeks of class to have the discussion of general education and then used that throughout the remainder of the course to work them through both issues of content, but also as a way of meeting the outcomes.

- The discussion questions on the in-class exams make students make judgments, and requires that they learn to develop clear written explanations fairly quickly ... and given the exams I suspect that students have to study and think about the material seriously prior to the exams in order to do well. The in-class exams really make the students think about connections and dilemmas discussed in class.

- This course is really outstanding. The assignments give students excellent opportunities to demonstrate their competence. The final exam could be a model for others even in larger classes. It requires brief answers, yet engages the student in comparing cultural differences. So, well thought-out assignments generated thoughtful responses (in several cases anyway).

2. **In terms of addressing the intended gen ed learning outcomes, what suggestions would you give to the faculty member?**

- This is an excellent course. The faculty member should state the learning outcomes in the syllabus to reinforce for students what his intentions are.

- More explicit statement of the gen ed/synthesis aspect of the course (not a content change, just a highlighting).

- This course makes sense as a capstone for the major, however, I do not think works very well for synthesis. While the portfolio could address the learning outcomes, I don't see how in its current form it brings together multiple perspectives or requires much critical thinking.

- This looks like a very worthwhile class in its encouragement of self-directed research, and how it makes the students create meaningful connections of specific historical contexts to their personal life. As a synthesis course, it needs some clarification of the relationship between the research assignment, the research process and resulting analysis, and in particular outcome #2. The assignment seems to limit outcome 2 to "connecting issues to wider concerns," rather than to the perspectives of other disciplinary approaches. To an extent, it seems the outcomes are being manifest through default, rather than intention.

- Although I think the course does everything pretty well, it might be worth looking at a slightly enhanced oral communication component-- perhaps in the form of oral argumentation vs. presentation? The instructor also noted a need to spend more time in class on specific examples of critical thinking skills, which is of course highly desirable.

- I think the course covers the synthesis outcomes well, but assessment of the oral components could include more on the quality of the presentations (like the assessment of the written components do).

- Provide detail specifications of course assignments with grading criteria.

- The synthesis learning outcomes should be explicitly referenced in the syllabus and should in some measure inform the work of the course. The course clearly meets the written communication requirement and both of the outcomes for SLO #3; however, there is very little evidence of SLO #2 (in the student

samples, two had one reference each to works from other disciplines). There doesn't appear to be any support for looking at problems or issues from the perspective of two or more disciplines-- the course is strictly disciplinary in its approach to 'synthesis' (which is at odds with the requirements for a synthesis course).

VIII.   Follow-up Actions

Four course received two poor ratings and one received one poor rating on its overall effectiveness in addressing the intended synthesis learning outcomes. These five courses will be reviewed by a third reviewer. Then, the Associate Provost for Undergraduate Education, the Associate Provost for Institutional Effectiveness and the Director of Institutional Assessment will meet with relevant department chairs to further discuss issues of particular concern as well as actions to be taken to better align course learning outcomes with synthesis outcomes. In addition, two debriefings will be held in spring 2011, one with the general education committee and the other with the remaining participating faculty members and their chairs. At the debriefings, aggregated results will be distributed, best practices in teaching synthesis courses will be shared, and discussions will focus on the use of assessment results in improving synthesis courses at Mason.

Appendix One

List of Synthesis Courses (Spring 2010)

College	Department	Course	Title	Portfolio
College of Education & Human Development	Graduate School of Education	EDCI 490	Student Teaching in Education	
	Recreation, Health & Tourism	HEAL 490	Internship in Community Health Education	√
		PHED 415	Student Teaching in Physical Education	√
		SPMT 490	Internship	√
		TOUR 490	Internship in Tourism	√
College of Health and Human Services	Health and Human Services	HHS 465	Examination and Integration of Professional and Health Care Issues	√
College of Humanities & Social Sciences	Administration of Justice	ADJ 303/ CRIM 303	Experiencing Criminal Justice System	
	Bachelor Individualized Study	BIS 490	Bachelor of Individualized Study Project	√
	Communication	COMM 326	Rhetoric of Social Movements and Political Controversy	
		COMM 362	Argument and Public Policy	√
		COMM 454	Free Speech and Ethics	√
	Economics	ECON 309	Economic Problems and Public Policies	√
	English	ENGL 325	Dimensions Writing and Literature	√
	History	ARTH 394	The Museum	√
		HIST 300	Introduction to Historical Method	√
		HIST 499	Senior Seminar in History	
	Humanities & Social Sciences	CHSS 313/ PSYC 405	Mystery, Madness, and Murder	
		LAS 499	Research Seminar in Latin American Studies	
	Modern & Classical Languages	RUSS 353	Russian Civilization	√
	Philosophy	PHIL 309	Medicine and Human Values	
		PHIL 343	Issues in Environmental Ethics	
		PHIL 378	Reason, Science, and Faith in the Modern Age	√
	Public & International Affairs	GOVT 490	Synthesis Seminar	√
	Religious Studies	RELI 490	Comparative Study of Religion	
	Sociology & Anthropology	ANTH 400	Engaging the World: Antropological Perspectives on Social Issues	√
		SOCI 483	The Sociology of Higher Education	

College	Department	Course	Title	Portfolio
College of Science	Geography/Geoinformation Science	GEOG 303/ GGS 303	Conservation of Resources/Environment	
	Mathematics	MATH 400	History of Mathematics	√
	Molecular and Microbiology	BIOL 301	Biology and Society	√
College of Visual & Performing Arts	School of Art	AVT 497	Senior Project	√
		AVT 498	Senior Design Project	√
	School of Dance	DANC 490	Senior Dance Seminar	√
	School of Music	MUSI 490	Musical Communication in Context	
	Theatre	THR 440	Advanced Studies in Directing and Dramaturgy	√
School of Conflict Analysis & Resolution	Conflict Analysis & Resolution	CONF 490	Integration	√
School of Management	School of Management	SOM 498	Capstone Course: Advanced Business Models	√
University (Provost)	Provost's Office	CONS 490	Integrated Conservation Strategies	
		UNIV 342	GMU Debate in Current Affairs	
Volgenau School of Engineering	Applied Information Technology	IT 492	Senior Design Project I	√
	Civil, Environ & Infrastructure Engineering	CEIE 490	Senior Design Project	√
	Computer Science	CS 306	Synthesis Ethics/Law for Computing Professional	√
	Electrical & Computer Engineer	ECE 492	Senior Advanced Design Project I	
		ECE 493	Senior Advanced Design Project II	
	Systems Engineering & Operations Research	SYST 495	Senior Design Project II	