JMU Assessment Progress Template

Interdisciplinary Liberal Studies (IdLS) - BS

PART I. Objectives

Description of process for developing objectives: More than a decade ago, a small group of administrators assembled 31 minutely detailed Student Learning Objectives. These were largely defined by the Virginia SOL's and teacher licensure competencies in each of the major subject areas. While fairly detailed, these objectives are largely unassessable. As such, a recommendation was made in the 2008-2009 IdLS Assessment Progress Template to revise the list of IdLS Goals and Objectives. In Spring of 2010, representatives from IdLS met with Dr. Keston Fulcher from CARS and discussed the development of new, assessable, program Goals and Objectives that fulfill the IdLS Mission. The Mission of IdLS is:

- To support the university's mission to produce educated and enlightened citizens.
- To help students embrace wisdom, inspire learning, and enhance living.
- To meet Virginia teacher competencies by providing breadth and integration across the content areas of English and language arts, history, social sciences, mathematics, natural sciences, and technology.
- To work collaboratively with the Education Unit to reach its goals as articulated in its Conceptual Framework, particularly as they relate to developing a deep understanding of content.

Starting with the 2009-2010 APT the following learning objectives serve as APT Program Goals and Objectives for the IdLS program[*].

Goals	Objectives	Measures and Rationale
IdLS students completing General Education will demonstrate knowledge central to the university's mission, and relevant to the Virginia teacher competencies.	IdLS students will, as a group, match other JMU students on General Education learning outcomes, specifically in technology, information literacy, scientific reasoning, quantitative reasoning, and the global and American experiences.	IdLS vs non-IdLS data from Clusters 1 (MREST[*] test), 3 (Scientific Reasoning & Quantitative Reasoning sub-scales), and 4 (Global & American Experience tests). General Education is the base upon which JMU aims to fulfill its mission to produce educated and enlightened citizens, and the specific content areas measured are teacher competencies required by the Virginia Department of Education.
IdLS seniors will demonstrate content-area proficiency on teacher licensure exams.	For all IdLS-related education programs having PRAXIS II content-area licensure exams (i.e., ELED, IECE, and MIED), each program will have at least an 80% pass rate on those	PRAXIS II scores and pass rates, reported by education program. Content-area proficiency is measured by PRAXIS II tests, and an 80% pass rate on PRAXIS II is a minimum pass rate required by NCATE for accreditation.

	exams.	For ELED and IECE, required content-area knowledge is covered by the IdLS core, taken by all ELED and IECE students. For MIED students, required content-area is covered by the IdLS MIED core and upper-level concentrations. SPED students do not have a content-related exam.
IdLS graduates will apply content-area proficiency in pK-8 classroom settings.	For current JMU MAT students who completed the IdLS major, more than 80% will get confirmation that they appropriately applied content-knowledge during their student teaching assignments.	ST-9 data (item A2, "Identifies key principles and concepts of subject matter") completed by student teacher supervisors and JMU instructors. While the 80% pass rate is not required by any accrediting body, this content-related pass rate mirrors the PRAXIS II pass rate required by NCATE and is therefore an appropriate minimum expectation for content proficiency.

Table 1. IdLS Goals, Objectives, and Measures

*As discussed in the following text, starting with the 2010-2011 reporting year, the Tech Level I test results are no longer available and will not be presented in the IdLS APT report. Additionally, starting with the 2013-2014 reporting year, the ISST (Information Seeking Skills Test) test has been replaced by the MREST (Madison Research Essential Skills Test).

Part II. Course/Learning Experiences

Virginia requires all of its teacher candidates to be prepared to teach the material in all of the SOL for the area of licensure, therefore the IdLS program goals and objectives must mesh with the state and federal requirements for teacher education. In 2005-06, IdLS faculty conducted the following alignments of our curriculum.

	Math/Science		Humanities/Social Science	
	Core	**Concentration**	**Core**	**Concentration**
VA – SOL Elementary	X		X	
VA Licensure Standards – Elementary Education	Math Only	Math Only	X	X
VA Licensure Standards – Middle Education	X	X	X	X
SPA Standards	Science Only	Science Only		

Table 2. Alignments conducted for IdLS curriculum and accreditation/licensure standards, 2005-06.

Results of these alignment studies revealed that our core curriculum in both math/science and humanities/social sciences includes nearly all of the essential components for teacher licensure. A few specific subject areas in science have little or no coverage (weather, plants, soil, technology for example) and in language arts students are exposed to one or at most two of the 4 literature areas (American, British, World, Ethnic) but overall the core curriculum provides an excellent foundation in all 4 subject areas.

The concentration curriculum was evaluated in two ways. First, transcripts of all recent Middle Education graduates were analyzed. Since students have many choices in their concentration coursework, it was felt that direct evaluation of transcripts would give the best information of what is actually covered in students' programs. These data are found in the Appendices of the 2009-2010 report. Second, the courses themselves were analyzed for the SOL or licensure areas that the instructors cover in the course. These data are also found in the Appendices of the 2009-2010 report. Transcript evaluations showed that most of the MIED humanities/social sciences students choose courses that cover less than half of the required licensure competencies. Particular weaknesses were in civics/economics and world history. World history is covered extensively in the core, but civic/economics coverage appears weak in both core and concentration.

Math/science MIED concentrators' transcripts were not evaluated in the same way, because the science component of this concentration has changed significantly in the past several years. This evaluation showed that students are choosing courses which fall into one or two science disciplines (as the old guidelines recommended). The new concentration guidelines are more restrictive of course selections and require a broader choice of discipline areas. Future evaluations need to be done to determine if coverage is improved. The individual alignments are found in the appendices associated with the 2005-06 report.

Part III. Evaluation / Assessment Methods

IdLS assessment is very complex. Evaluating students with two distinct upper division concentrations, for their mastery of knowledge, skills / attitudes in each of 4 subject areas poses a challenge. Thankfully several faculty and departments have been extraordinarily helpful in assembling data for our evaluation. CARS staff have done analyses of General Education data (Clusters 1, 3, and 4) that identify IdLS students and calculate their scores separately. The Educational Support Center in the CoE has provided database queries and provided student information regarding PRAXIS II test results and ST-9 results.   (See Table 1 for a description of each of the instruments used (Clusters in GenED, PRAXIS II, and ST-9) and why IdLS chose to use them).

Table 3 below indicates the current status of assessments for candidates' knowledge and skills / attitudes in each of the four core subject areas.

Subject Area	Instruments Used to Evaluate Candidates'	
	Knowledge	Skills/Attitudes
Science	Cluster 3, PRAXIS II	ST-9
Math	Cluster 3, PRAXIS II	ST-9
Language Arts	Cluster 1, PRAXIS II	ST-9
Social Studies	Cluster 4, PRAXIS II	ST-9

Table 3. IdLS assessment methods grouped by subject area versus knowledge or skill / attitude

General Education Instruments
The Core component of the IdLS curriculum includes all GenEd requirements and allows us to compare performance of IdLS students to non-IdLS students using the following General Education assessment tests: Madison Research Essential Skills Test (MREST), Natural World (NAW) quantitative reasoning, Natural World scientific reasoning (NAW), Global Experience (GLEX), and American Experience (AMEX).

As was the case for academic years 2008-2009, 2009-2010, 2010-2011, 2011-2012, and 2012-2013, data for this year (2013-2014) were evaluated on the performance of IdLS students for the MREST, the Natural World QR & SR, the Global Experience, and American Experience tests. General description, data collection information, and desired results are provided for each of these general education tests below.

Madison Research Essentials Test (MREST) (old Information Seeking Skills Test (ISST))
Prior to this reporting year (2013-2014) the exam used for this assessment was the Information Seeking Skills Test (ISST).   According to DeMars, Cameron, and Erwin (2003), "the ISST is a web-based test of 53 multiple-choice items. Four content areas (Basic Reference, Database Searching, Internet Skills, Ethics) are crossed with two process areas (Knowledge, Application). Application questions require students to apply knowledge by finding answers in catalogs and databases and by evaluating web sites. Proctors administer the test in a computer lab".
(http://muse.jhu.edu/journals/journal_of_general_education/v052/52.4demars.html)

Starting with this year's APT (2013-2014), this exam has been replaced by the Madison Research Essentials Test (MREST).   This exam tests the students ability to: (see:
http://www.jmu.edu/gened/infor_lit_general.shtml)

1. Recognize that information is available in a variety of forms including, but not limited to, text, images, and visual media.
2. Determine when information is needed and find it efficiently using a variety of reference sources.
3. Evaluate the quality of the information.
4. Use information effectively for a purpose.
5. Employ appropriate technologies to create an information-based product.
6. Use information ethically and legally.

Because first-year students must pass the test before enrolling in sophomore courses, students typically give a good effort on this test. Practically all IdLS students take this test (i.e., a census). The exact number of IdLS students who took the test is provided in the results section. Reliability analyses over the past several years (via item response theory) reveal that the reliability for the entire test is in the low to mid .70's, a reasonable level for making group decisions in higher education. Librarians developed this test and studies by CARS have indicated that students who have had more exposure to information literacy curriculum (e.g., in class work or practice with web modules) perform better on the test. These factors provide validity evidence that the scores on this test represent information literacy. The desired outcome is that IdLS students exhibit the same degree of competence as non-IdLS students on the MREST.

Natural World Test Version 9, Scientific Reasoning and Quantitative Reasoning Scores
The NW-9 test consists of 66 items, all of which contribute to the scientific reasoning (SR) score. Twenty-six of those items also contribute to quantitative reasoning and are totaled for a "QR" subscore. This test is delivered via paper and pencil and computer-based versions, both in the context of Assessment Day. Approximately one quarter of entering freshmen were randomly assigned (via the last two digits of a student's ID) to take the NAW-9 during fall 2009 Assessment Day. Many of the incoming IdLS students who took the NAW-9 in the fall of 2009 retook the test in the spring of 2012. Self report on motivation reveals that most students give a reasonable effort on the NAW-9.

The reliability of the SR and QR scores are typically in the .70s and .60s (Cronbach's alphas) respectively. This level of precision is respectable for higher education tests for group-level decisions. The test was designed by faculty content experts and these scores relate to both course exposure and course grades in science and math. These factors contribute to validity evidence that the scores do indeed reflect quantitative and scientific reasoning.

In terms of desired results, the IdLS program would like IdLS sophomores (post-test) to score the same as other JMU students. Additionally, the IdLS program would like IdLS students to make similar gains from pre-test to post-test as non-IDLS students. These criteria for desired results are based upon previous data provided by CARS.

Global(GLEX) and American Experience(AMEX) Tests
The GLEX instrument consists of 31 multiple choice items, AMEX consists of 81 multiple choice items. The tests are administered to incoming Freshmen during the August assessment day, and to students with 45-70 credit hours during the Spring assessment day. Tests were developed by content area faculty. Scores on both tests are standardized to a mean of 500 and standard deviation of 100, set so they match the means of the norming groups for the tests (freshmen in 2000 or 2001). The reliability of

the AMEX test is consistently in the range of 0.87, the GLEX is typically in the range or 0.75 (Cronbach's alpha). These reliabilities are sufficient to make group-level decisions based on aggregated scores.

PRAXIS II

All teacher licensure candidates must pass the relevant PRAXIS II exam(s) in order to be licensed. These exams are developed at ETS in consultation with teaching experts across the nation. In essence, the tests are designed to correspond directly with teaching licensure objectives. ETS provides reliability and validity evidence for this test: http://www.ets.org/s/praxis/pdf/validity.pdf. The reliabilities of these 5 tests range from 0.88 to 0.90 nationally. Because a passing score is required for licensure, students are assumed to provide a good effort on this test.

For the past several years, score reports and institutional summaries of JMU data have been available from ETS. For the Elementary Education Content Knowledge test, scores are provided for each of the 4 subject area subscales. The four subject areas each contribute 25% of the total score. Each of the 4 Middle School subject area tests contains several discipline-related scales (see Table 4 below). ETS publishes the list of content knowledge that is used to develop the test; this appears to match the IdLS learning objectives fairly well. ETS recommends that PRAXIS content be aligned with curriculum and learning outcomes before using it to make decisions about programs. The breakdown of content on the exams is as follows:

Middle School Mathematics Content Categories	Approximate Percentage of Examination
I. Arithmetic and Basic Algebra	20%
II. Geometry and Measurement	17%
III. Functions and Their Graphs	13%
IV. Data, Probability, and Statistical Concepts; Discrete Mathematics	
	17%
V. Problem-Solving Exercises	33%

Process Categories (Distributed Across Content Categories)
Mathematical Problem Solving, Mathematical Reasoning and Proof, Mathematical Connections, Mathematical Representation, Use of Technology

Middle School Language Arts Content Categories	Approximate Percentage of Examination
I. Reading and Literature Study	37%
II. Language Study	13%
III. Composition and Rhetoric	25%
IV. Short Essays	
1. Textual Interpretation, 2. Teaching Reading/Writing	25%

Middle School Science Content Categories	Approximate Percentage of Total Score
I. Scientific Methodology, Techniques, and History	8%
II. Basic Principles	11%
III. Physical Sciences	18%
IV. Life Sciences	15%
V. Earth/Space Sciences	15%
VI. Science, Technology, and Society	8%
VII. Short Content Essays: 1. Physical Sciences, 2. Life Sciences, 3. Earth/Space Sciences	25%

Middle School Social Studies Content Categories	Approximate Percentage of Examination
I. United States History	19%
II. World History	15%
III. Government/Civics	14%
IV. Geography	14%
V. Economics	13%
VI. Short Content Essays	25%

Table 4. Content area coverage and exam breakdown for four Middle School Praxis II content exams. <u>NOTE:</u> Starting with the 2011-2012 PRAXIS Test for Middle School Social Studies, there is no longer a Content Category for Sociology /Anthropology.

ST-9

ST-9 is part of the "Assessment of Student Teaching" conducted by the COE at JMU. This form (see Appendix 1), titled "PROFILE OF STUDENT TEACHING PERFORMANCE" is filled out by the cooperating teacher and university supervisor while the IdLS student is Student Teaching. Box A2 of this form pertains to the ability of the STUDENT TEACHER to IDENTIFY KEY PRINCIPLES AND CONCEPTS OF SUBJECT MATTER. A score of:

- **3.0** means that the student teacher explicitly references AND clearly aligns appropriate content standards with planned activities and assessments,
- **2.0** means that the student teacher explicitly references appropriate content standards in daily plans.
- **1.0** means that the student teacher inaccurately and vaguely references OR does not reference appropriate content standards.

The most recent data that is available from the COE is for the 2012-2013 Academic Year, and is what will be presented here.

PART IV. Objective Accomplishments/Results

GENERAL EDUCATION

Cluster 3 NW-9 Test Results:

The Natural World (NW-9) instrument measures general scientific reasoning and analysis skills, independent of specific content. As such, it is a good test of students' overall science ability or skill, but not of their specific subject area knowledge. As shown in the last column of Table 4A, IdLS students (n=56), on average, answered 69.59% (SD = 11.61) of NW-9 items correctly; whereas non-IdLS students (n-919) answered on average 74.76% (SD = 11.84) correctly. These differences were statistically significant $t(973)$ = 3.12, p = .002, d = .20. Stated differently, the average IdLS NW-9 score is approximately .20 standard deviations below non-IdLS students.

Note: Table 4A presents data for the last 4 NW-9 test results. Starting with the most recent reporting period (Spring 2014), CARS is presenting data as "Mean %" correct. In previous years, data is presented as "Mean correct responses".

NW-9 Descriptive Statistics for Total Score											
	Spring 2011			Spring 2012			Spring 2013			Spring 2014		
	Mean Correct	SD	N	Mean Correct	SD	N	Mean Correct	SD	N	Mean % Correct	SD	N
Non-IdLS	49.79	8.19	966	49.21	7.62	943	49.08	7.63	1231	74.76	11.84	919
IdLS	48.04	8.6	82	48.03	6.73	66	46.49	7.08	74	69.59	11.61	56

Table 4A. Comparison of NW-9 Scores of non-IdLS and IdLS students Spring 2014 and the three previous years.

As implied by data shown in the last column of Table 4B, similar results are obtained with Quantitative Reasoning (QR) scores $t(973)$ = 3.61, p = .001, d = .23.

Note: Table 4B presents data for the last 4 QR test results. Starting with the most recent reporting period (Spring 2014), CARS is presenting data as "Mean %" correct. In previous years, data is presented as "Mean correct responses".

NW-9 Descriptive Statistics for Quantitative Reasoning (QR)											
	Spring 2011			Spring 2012			Spring 2013			Spring 2014		
	Mean Correct	SD	N	Mean Correct	SD	N	Mean Correct	SD	N	Mean % Correct	SD	N
Non-IdLS	18.62	3.89	966	18.55	3.73	943	18.49	3.79	1231	71.45	14.53	919
IdLS	17.84	4.2	82	17.92	3.43	66	17.31	3.72	74	64.22	14.67	56

Table 4B. Comparison of QR Scores of non-IdLS and IdLS students for Spring 2014 and the three previous years.

In order to determine if these differences were a function Cluster 3 coursework, this analysis was replicated when holding Cluster 3 coursework requirements constant. Table 4C provides descriptive statistics for performance on the NW-9 and QR **only for students who completed their Cluster 3 requirements.**

IdLS students who completed relevant coursework on average answered 70.48% (*SD* = 14.04) of the NW-9 correctly; whereas similar non-IdLS students answered 77.01% (*SD* = 11.10) of the NW-9 correctly. These differences were statistically significant $t(295)$ = 2.65, p = .009, d = .33. These values indicate that the average IdLS student, who completed their coursework, is approximately 1/3 of a standard deviation below the average non-IDLS student on the NW-9. Once again, similar results were obtained for QR $t(295)$ = 2.38, p = .02, d = .29.

Note: Data presented in Tables 4C-4E are not available for previous years.

	NW-9		QR	
	Mean % Correct	**Standard Deviation**	**Mean % Correct**	**Standard Deviation**
Non-IdLS students (*n* = 274)	77.01	11.10	73.72	14.08
IdLS students (*n* = 23)	70.48	14.04	66.38	15.65

Table 4C. Cluster 3 Mean Scores and Standard Deviations for Students who Completed Relevant Coursework for Spring 2014

Of the 56 IdLS students who completed the NW-9 in February 2014, there were 23 who completed their Cluster 3 requirements. Of these, 18 completed a pre-test as entering freshmen. Descriptive statistics for these students, as well as similar non-IdLS students (n = 192) are reported in Table 4D for the NW-9. Both IdLS and non-IdLS students increased in NW-9 at post-test $F(1, 208)$ = 15.33, $p < .001$. There is currently insufficient evidence to indicate that this increase is a function of whether the student is an IdLS or non-IdLS student $F(1, 208)$ = 0.19, p = .67. Stated differently, it appears that **both IdLS and non-IdLS who completed relevant Cluster 3 coursework show similar gains at post-test**.

	Pretest	**Posttest**	**Difference**
Non-IdLS students (N = 192)	48.33 (6.16)	51.31 (6.89)	2.98
IdLS students (N = 18)	44.83 (6.88)	47.22 (7.35)	2.39

Table 4D. NW-9 Pre-Post Comparisons for Students who Completed relevant Cluster 3 Coursework for Spring 2014 (Note. Values reported are based upon 66 total items)

A similar analysis was completed for QR scores (see Table 4E). Once again, IdLS students and non-IdLS students showed similar, though statistically insignificant, gains at post-test $F(1, 208) = 0.48$, $p = .49$.

	Pretest	Posttest	Difference
Non-IdLS students (N = 192)	18.50 (3.40)	19.37 (3.40)	0.87
IdLS students (N = 18)	16.94 (3.87)	17.28 (3.41)	0.34

Table 4E. QR Pre-Post Comparisons for Students who Completed relevant Cluster 3 Coursework for Spring 2014 (Note. Values reported are based upon 26 total items)

Cluster 4 Global Experience and American Experience Tests

These instruments are used to assess performance in Cluster Four of General Education. Of this year's IdLS students, 45 took the American Experience (AMEX) test and 68 took the Global Experience (GLEX) test in February 2014. Mean standardized scores are shown in Table 5A. The standardized scores were defined to have a mean of 500 and a standard deviation of 100 in the norming group of entering freshmen, so a 10-point difference is about .10 standard deviation units (comparable to Cohen's *d*, but with a constant denominator that doesn't change from year to year or group to group).

	Spring 2013				Spring 2014			
	American Experience		Global Experience		American Experience		Global Experience	
	N	Mean (sd)	N	Mean (sd)	N	Mean (sd)	N	Mean (sd)
IdLS students	60	546.1 (89.9)	68	553.0 (97.0)	45	521.1 (115.1)	68	541.9 (110.1)
Non-IdLS students	955	531.4 (111.5)	1022	576.6 (116.9)	885	522.4 (109.6)	1269	570.7 (118.8)

Table 5A. Standardized scores on the AMEX and GLEX for IdLS students and Non-IdLS students (Standard Deviation).

A higher proportion of IdLS students completed the American requirements (84% of IDLS vs. 71% of non-IdLS). In Global, fewer IdLS (49%) than non-IdLS (62%) students completed the requirement. A more reasonable comparison can be made between IdLS students who had completed the relevant requirement. These values are shown in Table 5B.

Note: Data presented in Table 5B are not available for previous years.

	Spring 2014			
		American Experience		Global Experience
	N	Mean (sd)	N	Mean (sd)
IdLS students	38	535.5 (110.3)	33	572.7 (118.9)
Non-IdLS students	625	537.2 (108.4)	788	582.0 (116.3)

Table 5B. AMEX and GLEX scores for students who had completed the American or Global Experience requirement.

From Table 5B, in American Experience, the non-IdLS students scored 1.7 points (approximately 0.02 standard deviation units) higher. This small difference would be meaningless even if it were statistically significant, which it was not (t_{661} = 0.09, *p* =.928). The plausible range for the difference ranged from about -33.9 to 37.3, on the standard scale. In Global Experience, the non-IdLS students scored 0.09 standard deviation units higher, also a small difference. The difference between the IDLS student scores

and the non-IDLS student scores was not statistically significant ($t_{819} = 0.45$, $p = .6535$), with a plausible range of -31.3 to 49.9 on the standard scale.

Of the 45 IdLS students tested on the American Experience, 31 had scores from the fall 1.5 or 2.5 years before. Similarly, 47 of the IdLS students had earlier scores on the Global Experience test. 24 of these students had completed one of the American Experience courses at JMU, and 23 had completed one of the or Global Experience so the spring test served as a posttest for these students. Unlike Tables 5A and 5B, the pre-post comparison shown in Tables 5C and 5D does not include students who completed the requirement by AP or transfer credit before the pretest and did not take an additional course at JMU (these students would not be expected to increase their scores). Mean scores are shown in Tables 5C and 5D.

American Experience Pre-Post Comparisons								
	2013 Data				2014 Data			
	N	Pretest (sd)	Posttest (sd)	Difference	N	Pretest (sd)	Posttest (sd)	Difference
IdLS students	30	484.7 (113.9)	545.2 (93.1)	60.5	24	468.0 (107.7)	516.4 (103.0)	48.4
Non-IdLS students	547	495.6 (100.8)	529.0 (102.2)	34.4	273	491.9 (99.3)	522.5 (102.5)	30.6

Table5C. Pre- and Post-test comparisons for American Experience (Standard Deviation).

Global Experience Pre-Post Comparisons								
	2013 Data				2014 Data			
	N	Pretest (sd)	Posttest (sd)	Difference	N	Pretest (sd)	Posttest (sd)	Difference
IdLS students	30	529.3 (89.1)	561.4 (108.5)	32.1	23	522.8 (137.2)	587.9 (123.6)	65.1
Non-IdLS students	547	534.7 (111.6)	586.4 (116.7)	51.7	560	543.3 (109.3)	586.3 (117.5)	43.0

Table 5D. Pre- and Post-test comparisons for Global Experience (Standard Deviation).

On the American Experience test, the interaction between IdLS/non IdLS and pre/post test was not statistically significant this year ($F_{1,2952} = 1.08$, $p = .3001$). In other words, the non-IdLS increase was not significantly different from the IdLS increase. With such a small sample, the mean differences are unstable.

On the Global Experience test, there was not a significant interaction between IdLS/non-IdLS and pre/post test ($F_{1,581}$ = 1.22, p = .2702). In other words, the non-IDLS increase was not significantly different from the IDLS increase.

Cluster 1 (MREST test)

Prior to 2014, the Cluster 1 exam was called the Information Seeking Skills Test (ISST). There were two forms of the ISST so scores were reported only on the standardized scale. The passing score was set by a faculty committee at 513. Scores of 595 or greater receive an Advanced transcript notation. Students could repeat the test an unlimited number of times, and tutorials were available. Nearly all students passed by the end of the 1st year (those who do not probably did not bother repeating the test if they did not intend to remain at JMU).

Starting in 2014, the Cluster 1 exam is called the Madison Research Essential Skills Test (MREST). There are two forms of the MREST, so scores are again reported only on the standardized scale. Scores range from 100-200. The MREST contains items that were administered with the ISST in 2012-2013, so the scale was set with a mean of 150 and standard deviation of 15 for the 2012-2013 students. The passing score was set by a faculty committee at 148. Scores of 166 or greater receive an Advanced transcript notation. Students may repeat the test an unlimited number of times, and tutorials are available. Nearly all students pass by the end of the 1st year (those who do not probably did not bother repeating the test if they did not intend to remain at JMU).

This year (2014 Data) IdLS and non-IdLS students performed approximately the same on the MREST exam (see Table 6A). 99.5% of IdLS students pass and 98.9% of non-IdLS students pass, and 32% of IdLS students pass advance while 29% on non-IdLS students pass advance.

Percent Passing MREST (ISST) (of those who attempted the test at least once)

	2013 Data (ISST)					2014 Data (MREST)				
	N	# Pass	% Pass	# Advanced	% Advanced	N	# Pass	% Pass	# Advanced	% Advanced
IdLS	840	827	98%	325	39%	193	192	99.5%	62	32%
Non IdLS	3076	2999	98%	1101	36%	3849	3807	98.9%	1112	29%

Table 6A. Percent Passing either the ISST or the MREST (of those who attempted the test at least once)

IdLS students attempted the test an average of 1.83 times, almost the same as the non-IdLS students with 1.81 attempts on average.

Scores from the 1st attempt and final attempt are in the table below (see Table 6B). For many students, the 1st attempt was also the final attempt; only those who did not pass repeated the test. Thus, scores increase and the standard deviation decreases for the final attempt.

	2013 Data (ISST)				2014 Data (MREST)			
	1st Attempt		Final Attempt		1st Attempt		Final Attempt	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
IdLS	572.4	62.2	587.5	47.6	151.3	16.8	161.3	11.7
non-IdLS	566.0	66.8	584.3	52.3	151.6	17.3	161.1	11.4

Table 6B. Mean scores for 1st and final attempts for either the ISST or the MREST for IdLS students and others.

IdLS students scored slightly lower on the first attempt and nearly the same as non-IdLS students on the final attempt. The difference between non-IdLS and IdLS student scores was was virtually zero and not statistically significant (first attempt: t_{4040} = -.24, p =.8135, final attempt: t_{4040} = 0.25, p =.8061).

PRAXIS II

Elementary Content Knowledge
The Elementary Content Knowledge exam covers basic content knowledge across all 4 subject areas in IdLS. It matches the core curriculum for the program, since this is content that all elementary teachers must teach. JMU students continue to do extremely well on the elementary education content knowledge Praxis II test. The median score for the current test period (9/1/2012 to 8/31/2013) is 177/.5, which is 13.5 points higher than the national average (Table 7A). This score is also higher than the pass score for VA licensure which is 143. The lowest score among all JMU students who took the test during this year was 143, indicating that **all** scores for the PRAXIS II test are passing scores for this reporting period.

Elementary Education Praxis 2 results								
9/1/09 to 8/31/10			9/1/10 to 8/31/11		9/1/11 to 8/31/12		9/1/2012 to 8/31/2013	
	ALL	JMU	ALL	JMU	ALL	JMU	ALL	JMU
N	42,792	203	22,833	164	14,589	163	5,477	124
High	200	196	200	198	200	199	200	200
Low	100	143	100	143	100	134	100	143
Median	163	177	162	177	163	174	163	177.5
Average Range	150-175	170-185	149-175	168-185	150-176	168-182	149-176	168-184

Table 7A. PRAXIS II scores for all test takers and JMU cohort for Elementary Education

ETS reports the distribution of scores for each institution relative to the national quartiles. For the most recent reporting period, Science and Mathematics have 41% and 58% of scores in the top quartile, respectively, while Language Arts and Social Studies have 31% and 38% of the scores in the top quartile, respectively. Equally impressive are the very low numbers of students who scored in the lowest quartiles: 12% for Science, 3% for Mathematics, 6% for Social Studies and Language Arts (Table 7B).

Elementary Education Praxis 2 results								
9/1/2011 to 8/31/2012					9/1/2012 to 8/31/2013			
	Number (Percent) of Scores in each quartile				Number (Percent) of Scores in each quartile			
Subscale	1st (low)	2nd	3rd	4th (high)	1st (low)	2nd	3rd	4th (high)
Language Arts	5 (3%)	54 (33%)	56 (34%)	48 (29%)	8 (6%)	39 (31%)	39 (31%)	38 (31%)
Mathematics	4 (2%)	25 (15%)	47 (29%)	87 (53%)	4 (3%)	9 (7%)	39 (31%)	72 (58%)
Social Studies	10 (6%)	29 (18%)	83 (51%)	41 (25%)	7 (6%)	25 (20%)	45 (36%)	47 (38%)
Science	5 (3%)	32 (20%)	53 (33%)	73 (45%)	15 (12%)	24 (19%)	34 (27%)	51 (41%)
N=163					N=124			

Table 7B. JMU quartile results for Elementary Education Praxis II.

Comparing the sum of the top two quartiles for each Subscale for the 2011-2012 data and the 2012-2013 data, we see that student scores stayed the approximately the same for the areas of Language Arts, and Social Studies. There was an improvement of 7% for Mathematics, and a sharp decline in (10%) for the Science area.

Middle School Content Areas

The Middle School Content Area tests are a high-stakes assessment of the concentration curriculum. Students must pass two of these tests, usually chosen to match their two areas of concentration.

Middle School Language Arts

This exam covers content in: Reading and Literature Study (37% of test), Language Study (13% of test), Composition and Rhetoric (25% of test), and Short Essays (25% of test). Eight (8) JMU students took the Middle Ed Language Arts PRAXIS 2 exam this year and their scores ranged from 169 to 200 (Table 7C). Virginia's pass score for this test is 164. All students taking this test passed.

(NOTE: ETS does not generate statistical summaries for institutions with less than 5 results, therefore No Report (NR) was generated for IdLS or the College of Education for the 9/1/2011 to 8/31/12 reporting year).

Middle Ed Language Arts Praxis 2 results						
9/1/2010 to 8/31/2011			9/1/2011 to 8/31/2012		9/1/2012 to 8/31/2013	
	ALL	JMU	ALL	JMU	ALL	JMU
N	6961	7	NR	< 5	3,177	8
High	200	193	NR	NR	200	200
Low	100	167	NR	NR	100	169
Median	174	176	NR	NR	173	179.5
Average Range	162-185	167-182	NR	NR	160-184	172-188

Table 7C. PRAXIS II scores for all test takers and JMU cohort for Middle Ed Language Arts.

Table 7D shows the quartile scores for the subgroups of this exam (Reading and Literature Study, Language Study, Composition and Rhetoric, and Short Essays). Four students scored in the top quartile in Composition and Rhetoric, 3 in Reading and Literature Study, 3 in Short Essays, and 2 in Language Study. The weakest area is Reading and Literature Study, with 50% of the students scoring in the lowest 2 quartiles. However, with only 8 students taking this test, the number of students is too small to draw reliable programmatic conclusions.

Again, since less than 5 JMU students took the Middle Ed Language Arts PRAXIS 2 exam No Report (NR) was generated for IdLS or the College of Education for the 9/1/2011 to 8/31/2011 reporting period.

Middle Ed Language Arts Praxis 2 Results								
	9/1/2011 to 8/31/2012				9/1/2012 to 8/31/2013			
	Number (Percent) of scores in each quartile				Number (Percent) of scores in each quartile			
	1st (low)	2nd	3rd	4th (high)	1st (low)	2nd	3rd	4th (high)
Reading and Literature Study	NR	NR	NR	NR	0 (%)	4 (50%)	1 (13%)	3 (38%)
Language Study	NR	NR	NR	NR	1 (13%)	2 (25%)	3 (38%)	2 (25%)
Composition and Rhetoric	NR	NR	NR	NR	0 (%)	2 (25%)	2 (25%)	4 (50%)
Short Essays	NR	NR	NR	NR	0 (%)	3 (38%)	2 (25%)	3 (38%)
N = < 5 (No Report generated by ETS)				N =8				

Table 7D. JMU quartile results for Middle School Language Arts Praxis II.

Middle School Social Studies

This exam covers content in US History, World History, Government and Civics, Geography, Economics, and Sociology/Anthropology. Passing score in Virginia is 160. With fewer than 5 students taking this exam in this reporting period, ETS did not generate any reports for the Middle Ed Social Studies PRAXIS II exam. Table 7E and 7F reflect this as NR for all entries.

Middle Ed Social Studies Praxis 2 results						
	9/1/2010 to 8/31/2011		9/1/2010 to 8/31/2011		9/1/2012 to 8/31/2013	
	ALL	JMU	ALL	JMU	ALL	JMU
N	4,485	5	8,735	32	NR	< 5
High	200	195	200	200	NR	NR

Low	100	169	113	150	NR	NR
Median	164	173	165	174.5	NR	NR
Average Range	152-176	171-183	156-175	169-182	NR	NR

Table 7E. JMU versus US results for Middle Ed Social Studies Praxis II.

Middle Ed Social Studies Praxis 2 Results								
	9/1/2011 to 8/31/2012				9/1/2012 to 8/31/2013			
	Number (Percent) of scores in each quartile				Number (Percent) of scores in each quartile			
	1st (low)	2nd	3rd	4th (high)	1st (low)	2nd	3rd	4th (high)
US History	3 (9%)	6 (19%)	9 (28%)	14 (44%)	NR	NR	NR	NR
World History	0 (0%)	5 (16%)	12 (38%)	15 (47%)	NR	NR	NR	NR
Government / Civics	2 (6%)	5 (16%)	15 (47%)	10 (31%)	NR	NR	NR	NR
Geography	2 (6%)	6 (19%)	15 (47%)	9 (28%)	NR	NR	NR	NR
Economics	4 (13%)	11 (34%)	6 (19%)	11 (34%)	NR	NR	NR	NR
Sociology / Anthropology	NA	NA	NA	NA	NA	NA	NA	NA
Short Essays	4 (13%)	9 (28%)	16 (50%)	3 (9%)	NR	NR	NR	NR
N = 32					N < 5 (No Report Generated by ETS)			

Table 7F. JMU quartile results for Middle School Social Studies Praxis II. For the last three reporting periods, Sociology / Anthropology scores were not available from the College of Educations ETS center (see http://www.ets.org/Media/Tests/PRAXIS/taag/0089/glance.htm for a description of this test for the current testing time frame).

Middle School Mathematics

Twenty students took the middle school mathematics exam during the most recent reporting period. Their scores ranged from 152 to 199. The median score was 178.5, which is 14.5 points higher than the national average (Table 7G). The passing score for this exam in Virginia is 163. All students who took this test eventually passed.

For the 2012-13 reporting period, the majority of scores were in the highest two quartiles compared to the national average in all 5 subscales (Table 7H). Using quartile scores it is apparent that "Data, probability, statistical concepts, discrete math" and "Problem Solving Exercises" are the lowest performing subscales, while "Functions and their Graphs" is the strongest subscale.

Middle Ed Mathematics Praxis 2 Results						
9/1/2010 to 8/31/2011			9/1/2011 to 8/31/2012		9/1/2012 to 8/31/2013	
	ALL	JMU	ALL	JMU	ALL	JMU
N	11,119	22	9,776	10	9,294	20
High	200	195	200	193	200	199
Low	107	159	103	148	100	152
Median	163	181.5	164	180	164	178.5
Average Range	152-177	172-193	152-179	153-192	151-178	165-184

Table 7G. PRAXIS II scores for all test takers and JMU cohort for Middle Ed Mathematics.

Middle Ed Mathematics Praxis 2 Results								
	9/1/2011 to 8/31/2012				9/1/2012 to 8/31/2013			
	Number (Percent) of scores in each quartile				Number (Percent) of scores in each quartile			
	1st (low)	2nd	3rd	4th (high)	1st (low)	2nd	3rd	4th (high)
Arithmetic and Basic Algebra	1 (10%)	2 (20%)	3 (30%)	4 (40%)	3 (15%)	3 (15%)	6 (30%)	8 (40%)
Geometry and Measurement	2 (20%)	1 (10%)	4 (40%)	3 (30%)	1 (5%)	4 (20%)	9 (45%)	6 (30%)

Functions and their graphs	1 (10%)	3 (30%)	0 (0%)	6 (60%)	1 (5%)	2 (10%)	9 (45%)	8 (40%)
Data, probability, statistical concepts, discrete math	0 (0%)	2 (20%)	6 (60%)	2 (20%)	2 (10%)	5 (25%)	6 (30%)	7 (35%)
Problem solving exercises	2 (20%)	3 (30%)	1 (10%)	4 (40%)	1 (5%)	6 (30%)	5 (25%)	8 (40%)
N = 10					N=20			

Table7H. JMU quartile results for Middle School Mathematics Praxis II.

Data from Table 7G indicate that there is little difference between the performance of the 2011-2012 group of 10 students and the 2012-2013 group of 20 students as Median, Low, and High scores are approximately the same.

Middle School Science

Fourteen students took this test during the year. The scores ranged from 140 to 178. The median score for JMU students taking the test was 163 compared to the national average of 156 (Table 7I). The passing score for this test in Virginia is 162. Three (3) students who took this test have yet to pass.

In 5 of the 7 subscales, the majority of scores were in the highest two quartiles compared to the national average (Table 7J). "Physical Sciences" and "Basic Principles" are the best performing subscales in the Sciences. "Science, technology, society" and "Life Sciences" are the weakest performing subscales with 50% or more of students scoring in the lowest 2 quartiles. Of particular concern is that students have performed poorly on the "Science, technology, society" area for 5 consecutive years and it is believed that this is meaningful result for the program. On the other hand "Earth/Space Sciences" performed poorly for the 2 previous reporting years, in this reporting period JMU students scored better than the national average.

Middle Ed Science Praxis 2 Results						
	9/1/2010 to 8/31/2011		9/1/2011 to 8/31/2012		9/1/2012 to 8/31/2013	
	ALL	JMU	All	JMU	All	JMU
N	4,964	19	4,796	5	4,171	14
High	200	184	200	173	200	178
Low	100	152	100	152	100	140
Median	156	165	156	167	156	163
Average Range	146-169	160-171	146-169	163-168	146-169	155-173

Table7I. JMU versus US results for Middle School Science Praxis II.

Middle Ed Science Praxis 2 Results								
	9/1/2011 to 8/31/2012				9/1/2012 to 8/31/2013			
	Number (Percent) of scores in each quartile				Number (Percent) of scores in each quartile			
	1st (low)	2nd	3rd	4th (high)	1st (low)	2nd	3rd	4th (high)
Scientific methodology, techniques, history	0 (0%)	4 (80%)	0 (0%)	1 (20%)	2 (14%)	4 (29%)	5 (36%)	3 (21%)
Basic principles	0 (0%)	2 (40%)	2 (40%)	1 (20%)	1 (7%)	2 (14%)	7 (50%)	4 (20%)
Physical sciences	1 (20%)	0 (0%)	2 (40%)	2 (40%)	1 (7%)	1 (7%)	7 (50%)	5 (36%)
Life sciences	0 (0%)	3 (60%)	1 (20%)	1 (20%)	0 (0%)	7 (50%)	4 (29%)	3 (21%)
Earth/space sciences	1 (20%)	4 (80%)	0 (0%)	0 (0%)	1 (7%)	5 (36%)	5 (36%)	3 (21%)

Science, technology, society	1 (20%)	3 (60%)	1 (20%)	0 (0%)	4 (29%)	5 (36%)	4 (29%)	1 (7%)
Short essays	0 (0%)	2 (40%)	1 (20%)	2 (40%)	1 (7%)	4 (29%)	3 (21%)	6 (43%)
N = 5				*N = 14*				

Table7J. JMU quartile results for Middle School Science Praxis II.

Using Data from Table 7I, there is perhaps little difference between the performance of the 2010-2011 group through the 2012-2013 group of students as Median, Low, and High scores are all approximately the same (although there is perhaps a significant difference in the Low scores).

Analysis of Middle Ed PRAXIS II Data

The following table summarizes the number of attempts that students needed to take individual PRAXIS II tests in order to pass.

Content Area	2011-2012 Data				9/1/2012-8/31/2013			
	Passed on 1st Attempt	Passed on 2nd Attempt	Passed on 3rd (or more) attempt	Not Passed <number of attempts>	Passed on 1st Attempt	Passed on 2nd Attempt	Passed on 3rd (or more) attempt	Not Passed <number of attempts>
Mathematics	7	--	--	1	12	--	--	--
Science	3	--	1	2 <2 each>	6	1	2	1 <2> 2 <3>
English	2	--	--	--	5	--	--	--
Social Studies	2	--	--	--	2	1	--	--

Table 7K. Pass information for the Middle Ed PRAXIS II

This data shows that in the 2011-2012 cohort, 88% of the students who had taken the PRAXIS II tests had eventually passed the exams. In the current reporting period, 91% of middle education students eventually passed their PRAXIS II exams. Data suggest that Science continues to be the area that students have the most difficulty passing. However, a large majority of IdLS students taking PRAXIS II exams pass on their first attempt (74% in 2008-2009, 89% in 2009-2010, 83% in 2010-2011, 82% in 2011-2012, and 78% in 2012-2013).

ST-9 DATA (Item A2, "Identifies key principles and concepts of subject matter")
ST-9 is part of the "Assessment of Student Teaching" conducted by the COE at JMU. This form (see Appendix 1), titled "PROFILE OF STUDENT TEACHING PERFORMANCE" is filled out by the cooperating teacher and university supervisor while the IdLS student is Student Teaching. Box A2 of this form, pertains to the ability of the STUDENT TEACHER to IDENTIFY KEY PRINCIPLES AND CONCEPTS OF SUBJECT MATTER. A score of:
   - **3.0** means that the student teacher explicitly references AND clearly aligns appropriate content standards with planned activities and assessments,
   - **2.0** means that the student teacher explicitly references appropriate content standards in daily plans.
   - **1.0** means that the student teacher inaccurately and vaguely references OR does not reference appropriate content standards.

For 2012-2013, a total of 751 evaluations were made using the ST-9 instrument with the following statistical results. During this reporting period, candidates were rated by a supervisor and a classroom teacher, and typically do two placements per year, therefore there may be up to four ratings for any one candidate.

	ST-9 Analysis for 2008-2009	ST-9 Analysis for 2009-2010	ST-9 Analysis for 2010-2011	ST-9 Analysis for 2011-2012	ST-9 Analysis for 2012-2013
Average Score	2.93	2.9	2.94	2.93	2.95
High	3.0	3.0	3	3	3
Low	2.0	1.5	1.5	1	1
Standard Deviation	0.25	0.26	0.22	0.22	0.17
N	195	345	208	190	751

Table 8A. ST-9 scores for 2008-2009 to 2012-2013.

In 2008-2009 84% of students (ElED and Middle School) scored a 3.0 on item A-2 of the ST-9, meaning that 84% of the students demonstrated the highest level of mastery of content knowledge in their classrooms. In 2009-2010, 86% of ElED and MSED students achieved this highest level of mastery.   For the Spring and Fall semesters of 2011, data is available that splits the ElED and MSED students into separate groups. For the time period of 2011 to 2012, 95% ElED met highest level of mastery, while 81% of MSED also met this highest level of mastery.   For the current reporting period (2012-13) 93% ELED

met highest level of mastery, while 78% of MSED also met this highest level of mastery as demonstrated in the classroom.

RESULTS

From the data presented here for the 2013-2014 reporting period, it appears the IdLS has met each of its program goals.

- From the Cluster 1, Cluster 3, and Cluster 4 data analysis it appears that there is no significant difference between IdLS and non-IdLS students. While statistically significant differences do exist in Cluster 3 between IdLS and Non-IdLS groups, further analysis of the data show that these differences are likely the result of IdLS students entering JMU less prepared in science and mathematics than Non-IdLS students and that after IdLS students finish the IdLS core they have improved in science and mathematics by the same amount as Non-IdLS students. As a result, IdLS students have, as a group, matched other JMU students on General Education learning outcomes (specifically in technology, information literacy, scientific reasoning, quantitative reasoning, and the global and American experiences).

- From PRAXIS II data, it appears that each area (ELED, Middle School Math, Middle School Science, Middle School English, and Middle School Social Studies) is performing better than the national averages. For the 2012-2013 cohort, IdLS achieved a pass rate of 100% for ELED (all students eventually passed even though one student needed to retake the exam) and ~91% for all Middle School areas. Both scores are better than the program target of 80%.

- From ST-9 data, 100% of students achieved an adequate level of content proficiency as demonstrated in the classroom. This is again better than the target of 80%. More impressive yet, is that 93% ELED met highest level of mastery, while 78% of MSED also met this highest level of mastery as demonstrated in the classroom.

While meeting these assessment goals is meaningful, there are other recommendations that we can make based on the combined results of these assessments. The following is a list of recommendations to be disseminated to the various constituencies in IdLS.

1. Sciences: Elementary Education PRAXIS II test results indicate that students are being adequately prepared in sciences for this exam (Tables 7A and 7B). In fact for the current reporting period, 68% of JMU students who took this exam placed in the highest 2 quartiles in comparison to the national average (Table 7B). For Middle Education, Science, Technology, and Society (STS) has shown to be an area of poor performance (Table 7J). This is the fifth year in a row that STS has been a low performer on PRAXIS II. It was hoped that a new class (ISAT 495) that was developed five years ago was going to help improve this area, but we are still seeing low performance numbers (80% of JMU students who took this test place in the lowest 2 quartiles). In Fall 2013, the IdLS Steering Committee considered this issue in the Fall of 2013 and began discussions with faculty and administrators who developed this class in hopes of finding ways to improve student performance in this PRAXIS II area. Additionally, student performance in Earth and Space Science looks to have improved dramatically for this reporting period. We believe this is the result of a new astronomy course that was developed in AY 2012-2013 by Dr. Geary Albright (which took the place of ASTR 301 (Searching for Life in the Universe)) to specifically address the Middle Ed Space and Planetary Science requirements. Also, Dr. Jennifer Mangan developed a new Weather and Climate course for IdLS course that will take the place of the existing meteorology course in Spring 2013, again address the Middle Ed learning objectives for this area. Finally, during AY 2013-2014, discussions were started with faculty teaching the Earth Science for Teachers class to re-examine the content of this course and its alignment with

PRAXIS II learning objectives.   We are hopeful that these changes and ongoing discussions will improve these areas.

2. Social Studies: It appears students are being well prepared for Elementary Education in Social Studies (Table 7B) with 74% of students placing in the top 2 quartiles nationally. This year fewer than 5 students took this exam so it is impossible to make any programmatic recommendations based on this year's exam. However, based on last year's we will continue to discuss how we might better align the curriculum with PRAXIS II economics content. Dr. Johnathan Walker has taught an experimental course focusing on demography and economics as an upper-level course humanities and social science course to try to improve student knowledge of economic principles. Further discussion will take place among the IdLS Steering Committee to devise ways to incorporate more focus on economics in the IdLS Core.

3. Language Arts: It appears students are being well prepared for Elementary Education in Language Arts (Table 7B) with 62% of students placing in the top 2 quartiles nationally. Based upon results presented in Table 7D there have never been any multiple year trends in the data that would indicate a consistently weak part of the Middle Education program for Language Arts.

4. Mathematics: The math curriculum in IDLS remains one of the strongest content areas of the IdLS curriculum. All courses were designed from the NCTM standards, and the students all take the same core and concentration courses. Table 7B shows that consistently more than 50% of students who took the Praxis II Elementary Content test score in the top quartile nationally. From Table 7H, it appears that there are no multiple year trends in the data that would indicate a consistently weak portion of the Middle Education program for Mathematics.

Part V. Dissemination

The Annual Assessment Report is provided to the program director (Fletcher Linder) and discussed with both representatives from Math/Science/Technology and Humanities/Language Arts who serve on the IdLS Executive Committee. Substantial progress has been made over the past several years and this is anticipated to continue until a mature assessment program has been developed. The IdLS Executive Committee receive and discuss this assessment information and specific instrument results are shared with relevant area coordinators and faculty.

Results are also shared with the CoE unit assessment committee and the CoE Assessment Director (Amy Thelk) as well as several other joint IdLS/CoE groups.

Finally, IdLS provides this report (or parts of the report) to any other program or individual who expresses interest in these assessment results. For instance in the past year we have provided this report to the Dean's office of CSM and CISE, Department Heads of ISAT and Geology, and several faculty teaching in the program.

PART VI. Uses of Evaluation/Assessment Results and Actions Taken
Several specific actions have been taken as a result of assessment results. Most of these are discussed in the previous sections. A few of the most significant actions are summarized here.

1. The Director of IdLS and the Coordinator of IdLS Mathematics/Science/Technology met with the Deans of the College of Science and Mathematics in Fall of 2013 to discuss IdLS assessment and it implications for course rigor and improvement of content focus for Science and Math classes.
2. The Director of IdLS met with the Department Head of ISAT and the Dean of ISE to discuss IdLS assessment and it implications for course rigor and improvement of content focus for Science.
3. Middle Grades curriculum was, and continues to be, revised. Specifically, in response to low PRAXIS II scores for Middle Education Science, sub-area Earth and Space Science, a new Astronomy course was piloted in Fall 2012. Additionally in Fall 2011, a new course entitled Oceanography for Teachers was taught in place of a non-teachers Oceanography course. In 2013 a new course in Weather and Climate was developed and taught. Faculty teaching Earth Science for Teachers started evaluating curriculum and will revise course content during the 2014-2015 academic year.
4. With attention paid to IdLS assessment, discussion were begun in Fall of 2013 to realign and reorganize the IdLS Science core courses (GSCI 161-GSCI 166). This work in ongoing and is scheduled to be completed in Spring 2015.
5. In response to multiple years of poor student performance on the PRAXIS II Middle Education Science, sub-area Science, technology, society, the Math/Science/Technology Steering Committee will meet with faculty teaching the ISAT 495 class which was developed specifically to cover this area of the PRAXIS II test. It is hoped that these discussions will help to improve student performance on this part of the PRAXIS II exam.
6. Ongoing improvement in IDLS 400 based on annual faculty discussion of course design and implementation. This is especially useful to new faculty and guarantees consistency across sections and years.
7. Increased transparency of advising and scheduling, and enhanced cooperation between COE and IDLS to facilitate scheduling and sequencing of concentration courses based on formal and informal surveys of students and faculty.
8. Chemistry, STS classes, world history courses, and middle education science requirements were all changed in response to assessment results.
9. IdLS 400 piloted a section which includes science and mathematics content in 2009-10 and again in 2011-12 to provide a more fully integrative content course for students.
10. Goals, Objectives and Measures were modified in 2009-2010 based on previous years APT reports.
11. Improved cooperation between CARS and IDLS to assure data analysis in a timely manner.

APPENDIX 1. ST-9