

# I&II. Objective, course/learning experience

## 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 IdLS Mission 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 (Tech Level I & ISST tests), 3 (Scientific reasoning & quantitative literacy 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%	PRAXIS II scores and pass rates, reported by education program.  Content-area proficiency is measured by PRAXIS II tests, and the 80% pass rate on PRAXIS II is a minimum pass rate required by NCATE for

	pass rate on those exams.	<p>accreditation.</p> <p>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.</p>
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.	<p>ST-9 data (item A2, “Identifies key principles and concepts of subject matter”) completed by student teacher supervisors and JMU instructors.</p> <p>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.</p>

Table 1. IdLS Goals, Objectives, and Measures

## 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
<i>VA – SOL Elementary</i>	X		X	
<i>VA Licensure Standards – Elementary Education</i>	Math Only	Math Only	X	X
<i>VA Licensure Standards – Middle Education</i>	X	X	X	X
<i>SPA Standards</i>	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 found in the Appendices of the 2009-2010 report. Transcript evaluation 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. The world history requirement in the core is being modified as a result of these observations and assessment results.

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.

### III. Evaluation/Assessment Methods

#### 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 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 what each of the instruments are (Clusters in GenED, PRAXIS II, and ST-9) and why IdLS have chosen to use them).

The 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 or most of the courses required for GenEd Clusters 1, 2, 3, and 4, therefore GenEd assessment scores should be a reasonable measure of content knowledge in the IDLS core. We should be able to determine scores for IdLS students on the following General Education assessment instruments: Information Seeking Skills Test (ISST), Natural World (NAW) quantitative reasoning, Natural World scientific reasoning

(NAW), Global Experience (GLEX), and American Experience (AMEX). The general descriptions of the instruments appear to be related to the objectives.

As was the case for academic years 2008-2009 and 2009-2010, this year (2010-2011) data were evaluated on the performance of IDLS students for the ISST, 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.

### ***Information Seeking Skills Test***

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](http://muse.jhu.edu/journals/journal_of_general_education/v052/52.4demars.html)

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 .70s: 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 ISST.

### ***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 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 2008 Assessment Day. Many of the incoming IDLS students who took the NAW-9 in the fall of

2007 retook the test in the spring of 2010. Selfreport on motivation scales 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 and American Experience 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 objectives. ETS provides reliability and validity evidence for this test:

<http://www.ets.org/Media/Tests/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.

In the past few 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 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	18-20%
II. World History	14-16%
III. Government/Civics	11-13%
IV. Geography	11-14%
V. Economics	10-12%
VI. Sociology and Anthropology	0-5%
VII. Short Content Essays	25%

***Table 4. Content area coverage and exam breakdown for four Middle School Praxis II content exams.***

## **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 2009-2010 academic year and is what will be presented here.

## **IV. Objective Accomplishments/Results**

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## **GENERAL EDUCATION**

### ***Cluster 3 NAW Test Results:***

The Natural World 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. Results were similar for mean NW-9 total scores and standard deviation estimates, with both being rather similar across the groups of students. Non-IDLS student mean NW-9 total score was slightly higher than IDLS student mean NW-9 total score (1.75 points higher, on average). NW-9 total mean score standard deviation estimates for both groups were similar, indicating that, on average, there was a fair amount of variability in student NW-9 total scores across both groups. Overall, mean QR score and standard deviation estimates for both groups were quite similar. For Spring 2011 non-IdLS student mean QR score was slightly higher than IdLS student mean QR score (.78 points higher, on average). QR mean score standard deviation estimates for both groups were similar, indicating that, on average, there was a fair amount of variability in student QR scores across both groups.

<b>NAW9 Descriptive Statistics for Total Score</b>												
	<b>Spring 2008</b>			<b>Spring 2009</b>			<b>Spring 2010</b>			<b>Spring 2011</b>		
	<b>mean</b>	<b>SD</b>	<b>N</b>	<b>mean</b>	<b>SD</b>	<b>N</b>	<b>mean</b>	<b>SD</b>	<b>N</b>	<b>mean</b>	<b>SD</b>	<b>N</b>
<b>Non-IdLS</b>	47.0	7	970	48.3	8	1044	48.15	7.7	1002	49.79	8.19	966
<b>IdLS</b>	46.4	7	50	45.8	6.6	69	46.3	7.1	60	48.04	8.6	82

Table 4. Test of Mean Differences on Total NW9 Score

<b>NAW9 Descriptive Statistics for Quantitative Reasoning</b>						
	<b>Spring 2010</b>			<b>Spring 2011</b>		
	<b>mean</b>	<b>SD</b>	<b>N</b>	<b>mean</b>	<b>SD</b>	<b>N</b>
<b>Non-IdLS</b>	18.0	3.8	1002	18.62	3.89	966
<b>IdLS</b>	16.9	3.4	60	17.84	4.2	82

Table 5. Test of Mean Differences on QR Score

Both the NAW9 and QR scores show improvement for the period Spring 2010 to Spring 2011 for both non-IdLS and IdLS groups.

### *Cluster 4 Global Experience and American Experience Tests*

These instruments are used to assess performance in Cluster Four of General Education. In American Experience, the non-IDLS students scored 0.46 standard deviation units higher, comparable to previous years. The difference between the IDLS student scores and the non-IDLS student scores was statistically significant ( $t_{1,364} = 2.00, p = .047$ ), but with so few IDLS students in the sample the plausible range for the difference ranged from just above 0 to very large. In Global Experience, the non-IDLS students scored 0.36 standard deviation units higher. The difference between the IDLS student scores and the non-IDLS student scores was not statistically significant ( $t_{1,729} = 1.84, p = .067$ ).

	2010 Data				2011 Data			
		American Experience		Global Experience		American Experience		Global Experience
	N	Mean (sd)	N	Mean (sd)	N	Mean (sd)	N	Mean (sd)
IdLS students	36	532.2 (111.6)	28	558.6 (105.4)	29	509.0 (100.2)	60	543.3 (119.8)
Non-IdLS students	539	555.9 (108.8)	717	587.1 (113.4)	541	538.2 (109.6)	965	572.6 (120.0)

Table 6a. Standardized Scores on the AMEX and GLEX for IDLS students and Non-IdLS students (Standard Deviation).

On the American Experience test, the interaction between IdLS/non-IdLS and pre/post test was not significant ( $F_{1,403} = 0.03, p = .862$ ). was not significant ( $F_{1,270} = 0.49, p = .483$ ). Both groups increased their scores about the same amount (.41 standard deviation units for IDLS and .29 units for non-IDLS). Similarly for the Global Experience test, there was not a significant interaction between IDLS/not IDLS and pre/post test ( $F_{1,585} = 0.04, p = .840$ ). In other words, the non-IDLS increase (.63 standard deviation units) was not significantly higher than the IDLS increase (.59 units).

<i>American Experience Pre-Post Comparisons</i>								
	2010 Data				2011 Data			
	N	Pretest (sd)	Posttest (sd)	Difference	N	Pretest (sd)	Posttest (sd)	Difference
IdLS students	28	503.5 (115.4)	534.7 (94.9)	31.2	19	475.4 (110.3)	516.2 (111.4)	40.8
Non-IdLS students	377	542.3 (104.6)	571.0 (103.7)	28.7	253	535.1 (114.6)	563.7 (103.2)	28.6

Table 7a. Pre- and Post-test comparisons for American Experience (Standard Deviation).

<i>Global Experience Pre-Post Comparisons</i>								
	2010 Data				2011 Data			
	N	Pretest (sd)	Posttest (sd)	Difference	N	Pretest (sd)	Posttest (sd)	Difference
IdLS students (N = 24)	24	495.9 (83.8)	563.2 (101.3)	67.3	30	489.6 (124.9)	548.8 (131.9)	59.2
Non-IdLS students (N = 523)	523	509.3 (104.8)	596.0 (114.1)	86.7	558	520.3 (118.3)	583.5 (119.6)	63.2

Table 7b. Pre- and Post-test comparisons for Global Experience (Standard Deviation).

Scores for both the non-IdLS and IdLS groups show a decrease in performance for the Spring 2010 to Spring 2011 periods for both tests (American Experience and Global Experience). While both groups of students showed less improvement overall on the 2011 tests than they did for the 2010 test, IdLS students showed more improvement from pre- to post-test in 2011 than the non-IdLS students for the American Experience test. The reverse is true for the Global Experience test, the non-IdLS students showed more improvement than the IdLS students.

### *Cluster 1 (Tech Level I & ISST tests)*

#### *Tech Level I*

Unlike the other GenEd tests, Tech I is reported on a number correct scale instead of a standardized scale because outside software, which only allows for number correct scoring, is used for the tests. Each test is on a 20-point scale. Faculty set the passing score at 17 on Word (it was decreased to 16 this year), 15 on PowerPoint, and 12 on Excel. Students may repeat the test as many times as needed, and nearly all students pass by the end of the first year.

#### **Percent Passing Tech 1 (of those who attempted the test at least once)**

	2010 Data			2011 Data		
	Number who Attempted	Number who Passed	% Passed	Number who Attempted	Number who Passed	% Passed
Word						
IDLS	922	920	99.8%	Not Available	Not Available	Not Available
non-IDLS	2945	2935	99.7%	Not	Not	Not

				Available	Available	Available
PowerPoint						
IdLS	921	921	100%	Not Available	Not Available	Not Available
non-IdLS	2940	2935	99.8%	Not Available	Not Available	Not Available
Excel						
IdLS	920	917	99.7%	Not Available	Not Available	Not Available
non-IdLS	2937	2926	99.6%	Not Available	Not Available	Not Available

**Table 8. Percent Passing Tech 1 (of those who attempted the test at least once)**

As Table 8 shows, the data for the 2011 Tech Level 1 exam is not available from the vendor at the time of this report. However, in 2010 IdLS students attempted Word an average of 1.3 times, PowerPoint an average of 1.2 times, and Excel an average of 1.4 times. Non-IdLS students attempted Word an average of 1.3 times, PowerPoint an average of 1.1 times, and Excel an average of 1.4 times.

The 2010 scores for students the 1<sup>st</sup> attempt and final attempt are in the table below. For many students, the 1<sup>st</sup> attempt was also the final attempt; only those who did not pass repeated the test. Thus, scores increased and the standard deviation decreased for the final attempt. Means were virtually identical for IDLS and non-IDLS students (PowerPoint 1<sup>st</sup> attempts were higher for the IDLS students ( $t_{3859} = 2.31$ ,  $p = .0207$ , but the difference was statistically significant only because the sample was so large).

### Mean Scores

	2010 Data				2011 Data			
	1 <sup>st</sup> Attempt		Final Attempt		1 <sup>st</sup> Attempt		Final Attempt	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Word								
IdLS	16.6	2.7	17.8	1.3	NA	NA	NA	NA
non-IdLS	16.6	2.6	17.7	1.3	NA	NA	NA	NA
PowerPoint								
IdLS	17.8	1.7	18.1	1.2	NA	NA	NA	NA
non-IdLS	17.6	2.2	18.0	1.3	NA	NA	NA	NA
Excel								
IdLS	12.6	3.5	14.3	1.9	NA	NA	NA	NA
non-IdLS	12.6	3.5	14.3	1.9	NA	NA	NA	NA

Table 9. Mean scores for 1st and final attempts for Tech 1 tests for IdLS others.

*ISST*

There are two forms of the ISST (actually 4 this year; 2 were used up through mid-September, 2 others after that), so scores are reported only on the standardized scale. In the initial group of examinees, who did not need to pass the test, the scale was set to a mean of 500 and standard deviation of 100. In the following year (and all further cohorts) students had to pass the test, so the mean was higher and the standard deviation was smaller. This makes interpreting the standard scores a bit different than for other clusters. If you want to calculate a Cohen’s d, I suggest using the standard deviation from this year’s scores (if you want to compare multiple years, either pool the standard deviations first, or choose the standard deviation from a base year).

The passing score was set by a faculty committee at 513. Scores of 595 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).

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

	2010 Data					2011 Data				
	N	# Pass	% Pass	# Advanced	% Advanced	N	# Pass	% Pass	# Advanced	% Advanced
IdLS	872	857	98%	236	27%	856	832	97%	212	25%
Non IdLS	2763	2683	97%	701	25%	2743	2651	97%	662	24%

Table 10. Percent Passing ISST (of those who attempted the test at least once)

IDLS students attempted the test an average of 1.35 times, comparable to the non-IDLS students with 1.39 attempts on average.

Scores from the 1<sup>st</sup> attempt and final attempt are in the table below. For many students, the 1<sup>st</sup> 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.

**Mean Scores**

	2010 Data	2011 Data
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	<b>1<sup>st</sup> Attempt</b>		<b>Final Attempt</b>		<b>1<sup>st</sup> Attempt</b>		<b>Final Attempt</b>	
	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>
IdLS	548.0	57.4	569.8	43.0	546.4	63.1	569.3	46.6
non-IdLS	543.3	59.9	568.1	43.0	545.7	63.0	568.6	47.3

Table 11. Mean scores for 1st and final attempts for Tech 1 tests for IdLS others.

The difference between non-IDLS and IDLS student scores was not statistically significant for either first attempt ( $t_{3597} = 0.29, p = .7697$ ) or final attempt ( $t_{3597} = 0.40, p = .6864$ ).

## 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 2 test. JMU students continue to do extremely well on the elementary education content knowledge Praxis 2 test. The median score for the current test period (9/1/2009 to 8/31/2010) 177, 14 points higher than the national average. 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 students who took this PRAXIS 2 test passed.

<b>Elementary Education Praxis 2 results</b>				
	<b>9/1/2008 to 8/31/2009</b>		<b>9/1/2009 to 8/31/2010</b>	
	<b>ALL</b>	<b>JMU</b>	<b>ALL</b>	<b>JMU</b>
<i>N</i>	43,271	210	42,792	203
High	200	199	200	196
Low	100	144	100	143
Median	163	178	163	177
Average Range	150-176	170-184	150-175	170-185

Table 12. PRAXIS II scores for all test takers and JMU cohort



ETS reports the distribution of scores for each institution relative to the national quartiles. For the most recent reporting period, Science and Mathematics have 45% and 42% of scores in the top quartile, respectively, while Language Arts and Social Studies both have 39% of the scores in the top quartile. Equally impressive are the very low numbers of students who scored in the lowest quartiles: 2% for Science, 4% for Mathematics, 4% for Social Studies and 6% for Language Arts.

Elementary Education Praxis 2 results								
9/1/2008 to 8/31/2009					9/1/2009 to 8/31/2010			
Subscale	Number (Percent) of Scores in each quartile				Number (Percent) of Scores in each quartile			
	1 <sup>st</sup> (low)	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup> (high)	1 <sup>st</sup> (low)	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup> (high)
Language Arts	8 (4%)	35 (17%)	104 (50%)	63 (30%)	13 (6%)	40 (20%)	71 (35%)	79 (39%)
Mathematics	5 (2%)	24 (11%)	75 (36%)	106 (50%)	8 (4%)	29 (14%)	81 (40%)	85 (42%)
Social Studies	6 (3%)	39 (19%)	74 (34%)	91 (43%)	8 (4%)	42 (21%)	74 (36%)	79 (39%)
Science	10 (5%)	47 (22%)	80 (38%)	73 (35%)	5 (2%)	36 (18%)	71 (35%)	91 (45%)
<i>N=210</i>					<i>N=203</i>			

Table 13. JMU quartile results for Elementary Education Praxis II.

Comparing the 2008-2009 data with the 2009-2010 data, we see that students scores improved for the areas of Science and Language Arts, and a slight decline in performance for the Social Studies and Mathematics areas.

### **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, matching 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). Eleven (11) students took the test this year, and their scores ranged from 154 to 195. Virginia's pass score for this test is 164.

<b>Middle Ed Language Arts Praxis 2 results</b>				
<b>9/1/2008 to 8/31/2009</b>			<b>9/1/2009 to 8/31/2010</b>	
	<b>ALL</b>	<b>JMU</b>	<b>ALL</b>	<b>JMU</b>
<i>N</i>	7,017	8	7,627	11
High	200	191	200	195
Low	100	150	100	154
Median	173	184.5	174	183
Average Range	161-184	168-188	161-185	174-186

Table 14. JMU versus US results for Middle Ed Language Arts Praxis II.

Three of the 11 students scored in the top quartile in composition and rhetoric, two in essays, three in reading and literature study, and three in language study. The weakest area is Short Essays with more than half of the students performing in the lowest 2 quartiles. Students seem to perform well in all other areas (Reading and Literature Study, Language Study, and Composition and Rhetoric), with more than half of the students scoring in the top two quartiles. However, with only 11 students taking this test, the number of students is too small to draw accurate conclusions.

<b>Middle Ed Language Arts Praxis 2 Results</b>								
<b>9/1/2008 to 8/31/2009</b>					<b>9/1/2009 to 8/31/2010</b>			
	<b>Number (Percent) of scores in each quartile</b>				<b>Number (Percent) of scores in each quartile</b>			
	<b>1<sup>st</sup> (low)</b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>4<sup>th</sup> (high)</b>	<b>1<sup>st</sup> (low)</b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>4<sup>th</sup> (high)</b>
Reading and Literature Study	1 (13%)	3 (38%)	2 (25%)	2 (25%)	0 (0%)	3 (27%)	5 (45%)	3 (27%)
Language Study	1 (13%)	3 (38%)	1 (13%)	3 (38%)	1 (9%)	2 (18%)	5 (45%)	3 (27%)
Composition and Rhetoric	1 (13%)	1 (13%)	3 (38%)	3 (38%)	1 (9%)	3 (27%)	3 (27%)	4 (36%)

Short Essays	(0%)	3 (38%)	3 (38%)	2 (25%)	2 (18%)	4 (36%)	3 (27%)	2 (18%)
<i>N</i> = 8					<i>N</i> = 11			

Table 15. JMU quartile results for Middle School Language Arts Praxis II.

Data from Table 14 indicate that there is little difference between the performance of the 2008-09 group of 8 students and the 2009-2010 group of students as Median, Low, and High scores are all approximately the same.

### *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. Nine students took the test in 2009-10, with scores ranging from 160 to 191.

In all 7 subscales, at least 50% of scores were in the highest two quartiles compared to the national average. However, in the World History, Government/Civics, Geography, and Sociology / Anthropology, half of the scores were in the lowest two quartiles. . However, with only 10 students taking this test, the number of students is too small to draw accurate conclusions.

<b>Middle Ed Social Studies Praxis 2 results</b>				
<b>9/1/2008 to 8/31/2009</b>			<b>9/1/2009 to 8/31/2010</b>	
	ALL	JMU	ALL	JMU
<i>N</i>	5,166	9	5,017	10
High	200	190	200	191
Low	100	153	110	160
Median	165	180	165	171.5
Average Range	153-179	168-184	152-179	163-177

Table 16. JMU versus US results for Middle Ed Social Studies Praxis II.

Middle Ed Social Studies Praxis 2 Results								
9/1/2008 to 8/31/2009					9/1/2009 to 8/31/2010			
	Number (Percent) of scores in each quartile				Number (Percent) of scores in each quartile			
	1 <sup>st</sup> (low)	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup> (high)	1 <sup>st</sup> (low)	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup> (high)
US History	1 (11%)	3 (33%)	4 (44%)	1 (11%)	0 (0%)	4 (40%)	5 (50%)	1 (10%)
World History	0 (0%)	4 (44%)	2 (22%)	3 (33%)	2 (20%)	3 (30%)	4 (40%)	1 (10%)
Government / Civics	0 (0%)	3 (33%)	1 (11%)	5 (56%)	2 (20%)	3 (30%)	3 (30%)	2 (20%)
Geography	2 (22%)	4 (44%)	1 (11%)	2 (22%)	1 (10%)	4 (40%)	3 (30%)	2 (20%)
Economics	0 (0%)	4 (44%)	2 (22%)	3 (33%)	0 (0%)	3 (30%)	4 (40%)	3 (30%)
Sociology / Anthropology	0 (0%)	5 (56%)	4 (44%)	0 (0%)	0 (0%)	5 (50%)	1 (10%)	4 (40%)
Short Essays	0 (0%)	3 (33%)	2 (22%)	4 (44%)	0 (0%)	4 (40%)	1 (10%)	5 (50%)
<i>N</i> = 9					<i>N</i> = 10			

Table 17. JMU quartile results for Middle School Social Studies Praxis II.

Data from Table 16 indicate that there is little difference between the performance of the 2008-09 group of 8 students and the 2009-2010 group of students as Median, Low, and High scores are all approximately the same.

***Middle School Mathematics***

Thirty-five students took the middle school mathematics exam during the most recent reporting period. Their scores ranged from 155 to 200. The median score was 178, which is 14 points higher than the national average. The passing score for this exam in Virginia is 163.

For the 2009-10 period, the majority of scores were in the highest two quartiles compared to the national average in all 5 subscales. Using quartile scores it is apparent that Arithmetic and Basic Algebra, and Problem Solving Exercises are the two lowest performing subscales.

<b>Middle Ed Mathematics Praxis 2 Results</b>				
9/1/2008 to 8/31/2009			9/1/2009 to 8/31/2010	
	ALL	JMU	ALL	JMU
<i>N</i>	11,635	27	12,359	35
High	200	195	200	200
Low	103	148	100	155
Median	163	172	164	178
Average Range	151-177	165-180	152-177	171-187

Table 18. JMU versus US results for Middle School Mathematics Praxis II.

<b>Middle Ed Mathematics Praxis 2 Results</b>								
9/1/2008 to 8/31/2009					9/1/2009 to 8/31/2010			
	Number (Percent) of scores in each quartile				Number (Percent) of scores in each quartile			
	1 <sup>st</sup> (low)	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup> (high)	1 <sup>st</sup> (low)	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup> (high)
Arithmetic and Basic Algebra	1 (4%)	10 (37%)	8 (30%)	8 (30%)	2 (6%)	8 (23%)	11 (31%)	14 (40%)
Geometry and Measurement	4 (15%)	8 (30%)	7 (26%)	8 (30%)	1 (3%)	5 (14%)	16 (46%)	13 (37%)
Functions and their graphs	0 (0%)	8 (30%)	11 (41%)	8 (30%)	1 (3%)	2 (6%)	19 (54%)	13 (37%)
Data, probability, statistical concepts, discrete math	1 (4%)	8 (30%)	12 (44%)	6 (22%)	3 (9%)	6 (17%)	8 (23%)	18 (51%)
Problem solving exercises	2 (7%)	4 (15%)	12 (44%)	9 (33%)	2 (6%)	8 (23%)	10 (29%)	15 (43%)
<i>N</i> = 27					<i>N</i> = 35			

Table 19. JMU quartile results for Middle School Mathematics Praxis II.

Data from Table 18 indicate that there is little difference between the performance of the 2008-09 group of 8 students and the 2009-2010 group of students as Median, Low, and High scores are all approximately the same. Data from Table 19 indicate that for these two reporting periods, students consistently have a difficult time with the Arithmetic and Basic Algebra portion of the test as this area has the highest numbers percent of scores in the lowest two quartiles for both years.

### ***Middle School Science***

Twelve students took this test during the year. The scores ranged from 161 to 187. The median score for JMU students taking the test was 168.5 compared to the national average of 157. The passing score for this test in Virginia is 162.

In 6 of the 7 subscales, the majority of scores were in the highest two quartiles compared to the national average. Using quartile scores it is apparent that “Scientific methodology, techniques, history”, and “Science, technology, society” are the two lowest performing subscales.

<b>Middle Ed Science Praxis 2 Results</b>				
	9/1/2008 to 8/31/2009		9/1/2009 to 8/31/2010	
	ALL	JMU	All	JMU
<i>N</i>	5,208	19	5,512	12
High	200	184	200	187
Low	100	145	100	161
Median	157	164	157	168.5
Average Range	146-169	152-168	146-171	163-174

Table 20. JMU versus US results for Middle School Science Praxis II.

<b>Middle Ed Science Praxis 2 Results</b>								
	9/1/2008 to 8/31/2009				9/1/2009 to 8/31/2010			
	Number (Percent) of scores in each quartile				Number (Percent) of scores in each quartile			
	1 <sup>st</sup> (low)	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup> (high)	1 <sup>st</sup> (low)	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup> (high)
Scientific methodology, techniques, history	0 (0%)	6 (32%)	11 (58%)	2 (11%)	1 (8%)	4 (33%)	3 (25%)	4 (33%)
Basic principles	1 (5%)	6	6	6	0	4	5	3



Mathematics	16	3	0	2 <1>	25	--	1	1 <1>
Science	10	1	4	2 <1>	9	--	--	2 <2 each>
English	6	0	0	1 <1>	6	1	--	1 <2>
Social Studies	8	0	1	0	8	--	--	--

Table 22. Pass information for the Middle Ed PRAXIS II

This data shows that in the 2008-2009 cohort, 90% of the students who had taken the PRAXIS II tests had eventually passed the exams. In the current reporting period, 2009-2010 data, 92% of students have passed their PRAXIS II exams. Data suggest that Science and Math are the two areas 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, and 89% in 2009-2010)

### 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.

In the 2009-2010 academic year 345 students were evaluated with the ST-9 instrument with the following statistical results.

	ST-9 Analysis for 2008-2009	ST-9 Analysis for 2009-2010
<b>Average Score</b>	2.93	2.9
<b>High</b>	3.0	3.0
<b>Low</b>	2.0	1.5
<b>Standard Deviation</b>	0.25	0.26
<b>n</b>	195	345



Table 23. ST-9 scores for 2008-2009 and 2009-2010.

In 2008-2009 84% of students 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 students achieved this highest level of mastery.

## RESULTS

From the data presented here for the 2010-2011 reporting period, it appears the IdLS has met each of its program goals.

- From the Cluster 1, Cluster 3, and Cluster 4 data it appears that there is no significant difference between IdLS and non-IdLS students (although no data is available for this years APT for the Cluster 1 Tech Level I exam). While differences do exist, the statistical differences between groups is not significant. It appears that the IdLS core is doing as good of a job as the rest of General Education program in preparing IdLS majors.
- From PRAXIS II data, it appears that each area (EI Ed, Middle School Math, Middle School Science, Middle School English, and Middle School Social Studies) is performing better than the national averages. For the 2010-2011 cohort, IdLS achieved a pass rate of ~92% which is better than the target of 80%.
- From ST-9 data, almost 100% of all 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 86% of IdLS students achieved the highest level of content proficiency 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. Science: Elementary Education PRAXIS II test results indicate that students are being adequately prepared in sciences for this exam (Table 13). In fact for the current reporting period, Sciences are the strongest PRAXIS II area for Elementary Education. For Middle Education: Science, Technology, and Society has shown to be an area of poor performance. This is the third year in a row that STS has been a low performer on PRAXIS II. However, it is hoped that a new class (ISAT 495) that was developed three years ago to help improve this area will start to show improvement next in this area with next years PRAXIS results. Work over the last year in improving the pass rates for Middle Ed PRAXIS II science area appears to be having a positive impact.
2. Social Studies: It appears students are being well prepared for Elementary Education in Social Studies (Table 13). From Table 17 it is apparent that for the past 2 years students Middle Education students have struggled with the Geography and Sociology / Anthropology portions of the PRAXIS II exam. However, with very few test takers (10 or less) this could be a premature conclusion. However, it is recommended that these areas be examined for alignment with PRAXIS II content.

3. Language Arts: It appears students are being well prepared for Elementary Education in Language Arts (Table 13). From Table 15, it appears that there are no 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 13 shows that consistently more than 40% of students who took the Praxis II Elementary Content test score in the top quartile nationally. From Table 15, 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.

## **V. Dissemination**

### **Part V. Dissemination**

The Annual Assessment Report is provided to the program director (Fletcher Linder) and discussed with both steering committees (Math/Science/Technology and Humanities/Language Arts). The IdLS program's assessment efforts are evolving as the program evolves. 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 and the two steering committees receive assessment information. 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. We anticipate that this exchange will improve as Amy develops the assessment system and as preparation for NCATE accreditation gets underway.

## **VI. Uses of evaluation/Assessment Results and Actions Taken**

### **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. Goals, Objectives and Measures were modified in 2009-2010 based on previous years APT reports.
2. Middle Grades curriculum was, and continues to be, revised.
3. Ongoing improvement in IDLS 400 based on annual faculty evaluation of student projects. This is especially useful to new faculty and guarantees consistency across sections and years.
4. 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.
5. Chemistry, STS classes, world history courses, and middle education science requirements were all changed in response to assessment results.
6. IdLS 400 piloted a section which includes science and mathematics content in 2009-10.
7. Improved cooperation between CARS and IDLS to assure data analysis in a timely manner.
8. Based on last previous years APT's, the Mathematics/Science/Technology Coordinator starting meeting with all graduating seniors in 2009 to discuss ways to improve PRAXIS II pass rates and test scores. Based on the most recent PRAXIS II data (2009-2010), it appears that this may be having a positive influence on student performance.

## **VII. List of accomplishments (Optional)**