

# COVER SHEET FOR TIDES PROPOSAL SUBMISSION

<b>NAME OF INSTITUTION</b>	<b>Augsburg College</b>		
<b>INSTITUTION ADDRESS</b>	<b>2211 Riverside Avenue Minneapolis, MN 55454</b>		
<b>TITLE OF PROJECT</b>	<b>New Doorway to STEM: A Science-Skills Minor</b>		
<b>TOTAL BUDGET</b>	<b>\$ 300,000</b>	<b>/3 YEARS</b>	
<b>PROJECT TEAM</b>	<b>TITLE</b>	<b>DISCIPLINE</b>	<b>EMAIL</b>
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## PROJECT SUMMARY

The purpose of this proposal is to increase interest in majoring in Science, Technology, Engineering or Mathematics (STEM) among non-STEM majors. To date, most programs have focused on the high switch-out rate among those initially interested in STEM. The NSF and Carnegie (Quantway and Statway) are spending millions to remedy this. A radically different approach may be required.

An analysis of data shows that 40% of those who graduate with a STEM major switched in from a non-STEM major. This project focuses on increasing that switch-in number with students that are math proficient. Of the first year students at four year colleges, 59% are math proficient (above 60<sup>th</sup> percentile). Of those who are math proficient, 55% are not interested in STEM.

The goal is to increase interest in STEM among non-STEM majors who are math-proficient.

Our proposal envisions a “new doorway to STEM with gentler steps” focusing on those who may prefer English over algebra (many of these are women) and those with weak English skills (e.g., ESL) that may interfere with their ability to succeed in a STEM major.

This will be accomplished by creating a new Science-Skills minor: a science-workforce skills curriculum. It involves six existing courses with some enhancements. The six courses include [1] problem based Excel with an introduction to macros and Visual Basic programming or an entry-level computer science course, [2] Statistical Literacy (reading and interpreting everyday statistics in tables, graphs, surveys, studies and clinical trials), [3] Philosophy of Science (examining the strengths and weaknesses of manipulative experiments and randomized trials enhanced to include observational studies and simulations), [4] A laboratory science course, [5] an observational science course (c.f., epidemiology, geology, anthropology) and [6] a science skills course (c.f., technical writing, communication, critical thinking or logic).

For non-STEM majors, this minor provides a new doorway to investigate STEM. The goal is to increase their confidence in their ability to handle a STEM challenge and increase their interest in taking more STEM courses or switching to STEM entirely.

Of these six courses, the one involving the most enhancements is statistics. At Augsburg, Statistical Literacy involves critical thinking about numbers: how context can influence a statistic or a statistical association. See Schield’s (2004) paper in AAC&U Peer Review.

This proposal focuses strongly on rapid dissemination. This will be needed if PAKL is to meet its goal of influencing 100,000 students. The online training will be disseminated via [www.StatLit.org](http://www.StatLit.org) (run by the project PI) with almost 200,000 visits in 2013.

Assessment in this project will have two components: internal (how many students take this minor at Augsburg) and external (how many colleges adopt this minor and how many students do they influence). Internal goal: to sign up 30 students to sign up for this new Science-Skill minor in three years. External goals: to train 100 faculty to teach this statistical literacy course and for 5 institutions (200 students) to have adopted this PKAL Science-Skills minor within three years. The ten-year goal is 70 schools and more than 2,000 students.

Promoting this PKAL Science-Skills minor is a natural fit with the AAC&U Values Rubrics for Critical Thinking, Quantitative Literacy and Written Communications.

## PROJECT NARRATIVE

### Introduction:

The purpose of this proposal is to increase interest in STEM among non-STEM majors, specifically among women and students where English is a Second Language (ESL). Unlike traditional approaches to STEM retention and increasing representation among historically underrepresented groups that focuses on current STEM majors, this proposal will utilize a new doorway to STEM that allows non-STEM students to explore and gain confidence in STEM in a meaningful way.

Table 1 shows that Computer Science is tied with Engineering in female under-representation.

US Bachelor's Degrees: 2009-2010								
STEM	# Degrees	White	Black	Hispanic	Asian	Other	Female	%Degrees
Computer Sc.	39,589	67%	12%	7%	9%	5%	18%	3%
Engineering	72,654	69%	4%	7%	12%	7%	18%	5%
Mathematics	16,030	72%	5%	6%	10%	6%	43%	1%
Physical Sc.	23,379	74%	6%	5%	11%	5%	41%	1%
SUB-TOTAL	151,652	70%	7%	7%	11%	6%	24%	10%
College-wide	1,563,069	72%	10%	8%	7%	4%	59%	100%

Source: 2011 Digest of Education Statistics, Table 301. National Center for Education Statistics  
Tables 295, 296. 2012 US Statistical Abstract  
College-wide: 2008

Table 1

One way to increase STEM graduates is to focus on the high switch out (dropout) rates among first-year STEM majors (Table 2: Left side) and to advocate improving retention. Women and blacks have the highest switch-out rate. However math proficiency is a stronger predictor of STEM success than either race or gender. The switch-out/retention focus ignores the switch-ins shown in Table 2-right: *40% of those getting STEM degrees started in non-STEM majors*. This proposal focuses on the switch-in contribution – especially among those with high math scores.

Women need to be more interested in STEM in order to consider a switch; ESL students need to become more proficient in using technical English before they will switch to a STEM major.

Table 2:

A. Pctg of these 1st year students who start in STEM				A. Pctg of these 1st yr who start and graduate in STEM			
B. Pctg of these 1st yr who start and graduate in STEM				B. Pctg of these 1st yr who start non-STEM & grad STEM			
C. Pctg of these STEMers who switch out of STEM*							
Two & Four Year	A	B	C	Two & Four Year	A	B	TOTAL
All	13%	6%	54%	All	6%	4%	10%
White	12%	6%	50%	White	6%	5%	11%
African-American	14%	5%	64%	African-American	5%	3%	8%
Men	17%	9%	47%	Men	9%	5%	14%
Women	8%	3%	63%	Women	3%	3%	6%
Top math quartile	23%	15%	35%	Top math quartile	15%	6%	21%

Carnavale (2011) Table 6. \* includes college dropout  
Carnavale (2011) P. 46 & 47, Tables 6 and 7 combined

Table 3 classifies students by their math proficiency and their interest in STEM. Consider just the upper-left corner: those interested in STEM and proficient in math: 24% of four-year students (8% of two-year students). These students would have a high likelihood of success in STEM if

given the opportunity to experience and develop confidence in STEM. For Table 3 detail, see BHEF (2006, 2010, 2011-08, 2011-10, 2011-11, 2012-05, 2013a, 2013b)

Percentage of ACTs starting in 4-year (2-yr) colleges who are:			
Proficient in Math and interested in STEM	<b>A</b> 24% (8%)	<b>B</b> 35% (17%)	Proficient in Math but not interested in STEM
Interested in STEM but not Proficient in Math	<b>C</b> 11% (17%)	<b>D</b> 30% (58%)	Not interested in STEM and not proficient in Math
ACT & Business Higher-Ed Forum. <a href="http://www.nccu-cu.org/downloads/BHEF_STEM.pdf">www.nccu-cu.org/downloads/BHEF_STEM.pdf</a>			
<a href="http://www.bhef.com/sites/g/files/g829556/f/brief_2012_stem_interest_enrollment.pdf">www.bhef.com/sites/g/files/g829556/f/brief_2012_stem_interest_enrollment.pdf</a>			
C and D are reversed in BHEF May 2012. "Math proficient" if ACT Math is at least 22 (60th percentile)			

Table 3

Now consider the left half of Table 3: those interested in STEM. At four year colleges, *31% of those interested in STEM are NOT math proficient (11/35)*: At two-year colleges, most (68%) of those interested in STEM are NOT math proficient. The lack of proficient math skills among those interested in STEM might explain much of the high dropout rate.

Now consider the top half of Table 3: those proficient in math. *Most of those proficient in math are not interested in STEM*: 55% at four-year colleges (35/59); 68% at two-year colleges (17/25).

This proposal focuses on those in the upper half who do not start as STEM majors. Knowing that women are a minority among those who graduate with STEM majors and assuming that men and women are equally split among those who are proficient in math implies that women are likely to be a majority among those who are proficient in math but not interested in STEM.

The goal of this proposal is to increase the number of STEM graduates by providing a new doorway that may be more attractive to those who are – or want to be – verbally fluent. Ceci and Williams (2010) found that the correlation between verbal and math is higher among women than among men. Among those who are math proficient, this difference gives women more choices than men. By designing a Science-Skills doorway that will attract those who are verbally fluent, this should attract more women and then convert some of these to STEM majors.

Our focus on improving verbal skills – as a means of improving math skills – is also of special interest to students for whom English is a second language – and even for native English speakers who are less fluent. This approach is based on the experience of Orr (1987) who found that a lack of grammatical fluency (c.f., prepositions, comparatives and relative clauses) was responsible for deficits in reasoning and in calculation. Here is one example: 40 divided by 5 is the same as 5 divided into 40, but different from 5 divided by 40. If a student can't distinguish 'by' from 'into', 'to' and 'from', 'start' from 'finish' then they will have problem distinguishing 'premise' from 'conclusion', 'half more' from 'half of', or 'the percentage of women who are runners' from 'the percentage of runners who are women'. Is eight 'four times more than two' or 'four times as much as two'? Is 'two' four times less than 'eight'?

The W. M. Keck Statistical Literacy project funded extensive research on the use of ordinary English to describe and compare ratios using percent, percentage, rate and chance grammars. See Schield (2000, 2001 and 2011). It also generated an online program that tutors students on using ordinary English in describing and comparing rates and percentages as presented in tables, graphs and statements. Non-native speakers find this drill program extremely helpful.

By focusing on math-proficient students in non-STEM majors (c.f., women and ESL), the overarching goals of increasing STEM graduates and impacting 100,000 students can be achieved.

## Institutional Readiness.

Augsburg College, founded in 1869, is a private college set in a vibrant neighborhood at the heart of the Twin Cities. Augsburg offers more than 50 undergraduate majors and seven graduate degrees approximately 3,700 students of diverse backgrounds. The trademark of an Augsburg education is its emphasis on direct, personal experience. Guided by the faith and values of the Lutheran church, Augsburg educates students to be informed citizens, thoughtful stewards, critical thinkers, and responsible leaders.

Augsburg’s undergraduate program of liberal arts and sciences is offered on both a traditional weekday schedule and a non-traditional weekend and evening schedule. The Core Curriculum combines liberal arts, major coursework, and Augsburg’s signature courses to prepare students to be leaders and stewards of our ever-changing world. Students in all of our programs learn outside of the classroom through service learning, internships, fieldwork, consulting projects, and study abroad. It’s this commitment to hands-on learning, combined with the opportunities our city offers, that makes Augsburg’s educational experience unique.

Augsburg students come from 43 states and 26 countries to live and learn. In 2012, 29% were students of color. In the day college, 29.4% were first generation students, 42.7% were Pell eligible, and 6.5% were TRiO/Student Support Services Program participants.

The next table presents the demographic distribution of the major racial and ethnic groups along with percentage totals for under-represented minorities and for women. Augsburg aligns with national data showing that women are under-represented in Engineering and Computer Science.

Table 4

Augsburg College: Fall 2013. Population: Undergraduate Day students with Major1 in STEM										
Major1	???	Asian	Black	Hispanic	Am.Ind	Mixed	White	Total	URMinor	Female
Biology	9.4%	5.6%	18.8%	5.0%	0.6%	3.8%	56.9%	160	28%	58%
Chemistry	6.9%	13.8%	13.8%	8.6%	1.7%	6.9%	48.3%	58	31%	55%
Computer Sc	11.3%	15.5%	11.3%	4.2%	1.4%	2.8%	53.5%	71	20%	11%
Engineering	8.6%	14.3%	5.7%	14.3%	0.0%	17.1%	40.0%	35	37%	6%
Mathematics	2.9%	8.6%	2.9%	2.9%	0.0%	5.7%	77.1%	35	11%	40%
Physics	6.7%	3.3%	13.3%	10.0%	0.0%	3.3%	63.3%	30	27%	30%
STEM Total	8.5%	9.5%	13.6%	6.4%	0.8%	5.4%	55.8%	389	26%	40%
Augsburg UGD	12.2%	8.2%	10.1%	6.3%	0.9%	4.8%	57.1%	1926	22%	50%

### Existing Augsburg Programs:

Augsburg STEM programs are designed to support undergraduate students who are pursuing careers in STEM. This can encompass a number of majors including physics, chemistry, biology, computer science, biopsychology, and mathematics. To maintain and enhance Augsburg’s vital STEM community, this office provides students with opportunities to conduct research with faculty, attend and present at national conferences, and hear from leading researchers in these fields.

The AugSTEM program is designed to support Augsburg juniors and seniors who wish to pursue a career in science, technology, engineering, and mathematics. Funded by the National Science Foundation, AugSTEM Scholars can receive up to \$7,000 per year in financial support. Scholars

also become a part of the STEM community at Augsburg with opportunities for summer research, faculty mentoring, and career development.

Additional opportunities available in STEM include The McNair Scholars Program, which aims to increase graduate degree awards for students from underrepresented students, and the Undergraduate Research and Graduate Opportunity (URGO) Program, which provides students with research and internship opportunities.

Augsburg College is supportive of this proposal. Academic Affairs approved Statistical Literacy as a catalog course in 1997. Institutional support includes a commitment to offering two of the courses in the proposed Science-Skills minor, GST 200 and PHI365, at least once a year in the Day program, with the first offered by Spring 2015. Additional support is available from Dr. Rebekah Dupont, Director of STEM Programs, who will attend the annual STEM Institute and STEM Conference.

The project team includes the Principal Investigator, Dr. Milo Schield (Management Information Systems), the co-Principle-Investigator, Dr. Larry Crockett (Computer Science), Professor Marc Isaacson (MIS), the Director of Sponsored Programs, Erica Swift (Institutional Advancement), and the Dean of Arts and Sciences, Dr. Amy Gort. The project team has already been in discussion regarding course content revisions and deployment of the Science-Skills minor.

### **Implementation Plan.**

This project will establish a new doorway to STEM that is consistent with the AAC&U learning outcomes deemed ‘essential for knowledge and skill development.’ The courses start with gentler steps of greater interest than traditional mathematics, but are still math focused.

Students are curious about people and are quite interested in social, health and job issues; these typically involve statistics. Students in group B of Table 3 often find symbolic mathematics demotivating. By embodying algebra inside Excel, by including STEM inside real-world social-economic data, and by focusing on statistical literacy as quantitative rhetoric, students who say they are not interested in statistics or STEM are much more likely to change their mind. Wired magazine named statistical literacy as the #1 course student should have taken at college. Data analytics and “big data” are new and “hot” with students.

This proposal envisions a new “Science-Skills” minor: a six course minor that involves no new courses – although two will need to be enhanced.

- (1) Problem Solving with Excel: logic functions, graphs, pivot tables, modeling, macros/VBA, or an entry-level computer-science course.
- (2) Statistical literacy or traditional statistics with 15% Statistical Literacy content: Excel-based. Schield (2006) shows how context can influence statistical associations.
- (3) Philosophy of Science with attention to both experimental and observational studies. Primary focus on why Science should be viewed as a liberal art. See Schield’s (2005). PKAL paper.
- (4) An observational science course such as epidemiology, astronomy or data analytics.
- (5) An experimental science course such as entry physics, chemistry or biology.
- (6) A liberal arts skills course such as critical thinking, persuasive argumentation, science writing or logic

These courses were selected using two criteria. For Liberal Arts majors, what courses would help them the most in understanding how science generates knowledge. For Science majors,

what six courses would help them the most in reflecting on the knowledge claims they are making, and in communicating the results of their efforts to others. Presumably liberal arts majors will have taken – or are generally interested in taking – courses in communications, English and Philosophy. Science majors will have taken – or are generally interested in taking – courses in the sciences or on the philosophy of Science. For both groups, this Science-Skills minor will act as extension of a good general education program.

**Implementing the Minor:** The following outlines some of the steps in transforming the idea of a Science Skills minor into an academic reality. These steps are classified into internal and external depending on whether they affect Augsburg students or students at other institutions.

- Internally, there are four steps: (1) Submit the new minor to Academic Affairs for their approval. Since it doesn't involve any new courses, that should not be a problem. (2) Poll Augsburg students on their interest in this new Science-Skills minor. (3) Advertise the program to Augsburg students. Students that designate this minor and submit a written or video reflection on their experience with each course will receive a modest stipend. (4) Tabulate and evaluate the results of student feedback. Do they have a stronger interest in STEM courses, minor or major than they did before they started?
- Externally there are two distinct activities. One involving just the teaching of statistical literacy; the second involved in promoting this Science-Skills minor as a new doorway to STEM for non-STEM minors and a new doorway to the liberal arts for STEM majors.
  1. The teaching of statistical literacy requires faculty training: helping other faculty teach statistics as a literacy course instead of as a math course. A faculty training program has been designed and tested on faculty from Keene State College. Based on their feedback, the training program has been improved. (1) Update faculty training materials. (2) Have these updated materials reviewed by previously trained faculty. (3) Advertise the online faculty training program along with the stipend for those that complete the training and submit a written or video reflection on their experience. (4) Offer the online training program in 2014-15. (5) Organize a summer conference at Augsburg that presents these faculty reflections and provides on-site training for future faculty. Steps 3, 4 and 5 will be repeated each year. The only difference is that the stipends for reviewers and beta testers will get smaller as the program becomes better established.
  2. Promoting this Science-Skills minor as a new doorway between the Liberal Arts and STEM will involve a number of activities. (1) Presentation of papers at conferences and/or publication of papers in journals sponsored or owned by the AAC&U, PKAL or similar organizations. (2) Preparing web videos that promote interest in this new minor. (3) Hosting these materials on a web site that has an existing faculty audience. (4) Monitoring adoptions by other colleges and universities.

Internally, the final step will be to assess all of these activities for their impact on students and report the results to the project team and to the AAC&U/PKAL.

Members of the project team will participate in the annual STEM Institute and annual STEM Conference.

**Activating the Minor:** The implementation of this minor involves a different set of activities from the students' perspective.

- In taking the Excel course they will not only learn a new tool, but they will work unstructured problems that have multiple “right” answers. They will learn how to make tables, graphs and models so they can communicate the results to others. This course satisfies part of Augsburg Quantitative Literacy requirement. This is an inter-disciplinary tool they can use in the personal and professional lives. They will be introduced to computer programming. First with keystroke recorder macros and then with Visual Basic programming. Knowing the rudiments of Visual Basic can qualify them for better jobs and provide a doorway to Computer Science programming. This course is being taught at Augsburg by Professor Marc Isaacson.
- In taking statistics students will be studying one way the scientific method is implemented when dealing with subjects or measurements that are unique or highly variable. In taking statistical literacy, students will participate in numerous activities.
  - They will analyze the use of statistics in ten to 25 news stories using a new online forum (Odyssey) in which everyone is anonymous, everyone grades everyone else and the computer tabulates power for each player. This is the primary writing component of this course (Schield, 2014).
  - They will work hundreds of right-wrong exercises with immediate feedback using Moodle to develop the quantitative reasoning skills.
  - They will use the online grammar-checker to improve their use of ordinary English in describing and comparing rates and percents in graphs, tables, surveys and articles.
  - They will participate in individual or group activities that illustrate statistical ideas.
  - They will use Excel to summarize and model data using skills from the Excel course.
  - This course is taught at Augsburg by Dr. Milo Schield and Professor Marc Isaacson.
- In studying the Philosophy of Science they will discuss how Science creates knowledge that is robust and resilient in the face of new discoveries. They will learn the difference between hard science (laboratory repeatable manipulation) and soft science (purely observational or model-based simulation). They will see why some scientific findings are easily overturned whereas others are not. This overview of the scientific method may inspire them to learn more about a particular science or to choose a STEM major. This course will be taught at Augsburg by the co-PI, Dr. Larry Crockett.

Our goal is to give students a positive experience in dealing with numbers (statistical literacy) and in dealing with some of the big issues in science. In high school, students say they are interested in science and math, but not in the science and math courses they are taking. Osborne (2003). In college, students taking research statistics report seeing less value in statistics after completing the course than they did before they start. STEM definitely needs new doorways to attract and retain more majors.

Students in non-quantitative majors who take statistical literacy agree that this course should be a required course for all college students. Schield (2008). This is a practical skills course that helps them make sense out of numbers whether in the news, in personal decisions or in their professional lives.

**Field-Testing:** Augsburg can’t compete with the Carnegie foundation, but with its strong emphasis on under-represented groups (34% students of color, 51% women), Augsburg can field test this new approach before dissemination. Augsburg College has offered Statistical Literacy



for over 10 years to over a thousand students, piloted an Excel-based Statistical Literacy course and is developing a follow-on course in Excel-based data analytics. Having obtained a \$500,000 grant from the W. M. Keck Foundation in 2001 to develop Statistical Literacy, Augsburg is prepared for rapid and effective dissemination.

**Sustainability:** By using existing catalog courses, Augsburg does not need any special funding to maintain this program after the grant ends. Online faculty training in statistical literacy is expected to continue in future years by charging new faculty a small amount for their training. For more details see Dissemination.

## Management Plan

The project will be managed by the Principal Investigator, Dr. Milo Schield. Dr. Schield is an elected member of the International Statistical Institute (ISI) with over 60 papers on statistical literacy. He is the US coordinator of the International Statistical Literacy Project. See [www.StatLit.org/Schild.htm](http://www.StatLit.org/Schild.htm) Dr. Larry Crockett, co-PI, has authored several books and papers on computing and philosophy of science. He has been in charge of the Augsburg Honor’s program for many years. Professor Marc Isaacson (BA. Economics; MS, Engineering) teaches the Augsburg Freshman Seminar and has authored several papers on Statistical Literacy. He participated in the NSF/DUE-funded “Spreadsheets across the Curriculum.”

The project team will work under the authority of the Dean in charge of the Arts and Sciences, who will provide assistance and approval for curricular revisions and implementation of the minor. The Director of Sponsored Programs and Administrative Accounting will support the administration and financial management of the project, and ensure the disbursement of funds is properly controlled.

The project team will meet regularly to discuss progress and identify areas for continued improvement. As such, there may be changes to the project plan to improve our success at reaching our objectives. Any changes to the project plan– and the associated allocation of funds, will obtain pre-approval of all parties. Annual reports will be submitted by the Principal Investigator for review and approval by the administration before their submission to PKAL.

## Institutional Impact:

Liberal arts majors have increasing concerns about getting good jobs. The news science-skills minor will provide them with workforce-ready tools that may help them get better jobs. A study of jobs on Career Builder showed that Excel was mentioned four times as often as SQL and 20 times as often as C++.

JOBS BY LANGUAGE, O/S or DATABASE QUERY			
CAREER BUILDER: JOBS POSTED IN LAST 30 DAYS			
LANGUAGE	ALL	MN	MSP
Windows	20,121	455	128
SQL	16,357	414	130
Oracle	9,455	246	87
Java	8,244	127	48
Linux	5,951	111	**
Visual Basic	3,416	74	**
C++	2,762	38	**

JOBS BY COMPUTER APPLICATION			
CAREER BUILDER: JOBS POSTED IN LAST 30 DAYS			
APPLICATION	ALL	MN	MSP
Excel	71,536	1,721	511
Access	52,765	1,205	359
PowerPoint	19,392	490	157

Additionally, Augsburg's campaign to build its Center for Science, Business, and Religion, with an anticipated construction start date within the next year, means it has committed itself to a

degree of disciplinary integration that is rare in the contemporary collegiate environment. Programmatically, the Center means the college will implement a number of minors to facilitate the integration, one of which will be this new minor. Key to this endeavor will be a substantial improvement in both appreciation for and understanding of science across the curriculum. Not only does this mean greater understanding of science and its implications for business practice, for example, it means a more sophisticated understanding of both the potential and the limitations of science. This entails a philosophical assessment of science so that our students do not leave with a naive understanding of science born more of the media than the practice of science. Consequently, the science skills emphasis of the proposal will dovetail in a remarkable way with our new Center and our renewed commitment to an interdisciplinary understanding of science that informs all the disciplines.

### **Dissemination:**

The success of this proposal is strongly dependent on faculty training and academic advertising. Faculty training will be done using web-training materials. The project director, Milo Schield, maintains the world's largest website dedicated exclusively to statistical literacy – with close to 200,000 visits per year. Advertisements for this project will be feature on this website as a separate page.

A significant portion of the grant is dedicated to marketing: developing faculty training materials, disseminating this new approach, and encouraging other colleges to adopt this curriculum. The three-year goal is to reach and train over a 100 statistical educators and have at least five schools agreeing to implement this minor. The ten-year goal is 70 schools impacting at least 2,000 students. Conversations have been initiated with colleagues at six other schools on this new Science-Skills minor.

### **Evaluation Plan**

The objective part of evaluation plan is simple. (1) Did 20 Augsburg students sign up for this new Science-Skill minor? (2) Were at least 100 faculty trained in teaching statistical literacy? (2) Did at least 5 other schools adopt the PKAL Science-Skills minor by year three? (3) Did those schools impact at least 10 students per school year? (4) How many of those students took additional STEM courses, elect a minor in STEM, a STEM major or a major in Computer/Information Science? Additionally, we will evaluate how students' opinions changed during the course of the minor. Did they see value or utility in the courses they took? All data will be collected, analyzed by the project team in conjunction with the external evaluator. Results will be disseminated at academic conferences, manuscripts, and through the statistical literacy website.

Our external reviewer will evaluate yearly progress and submit a final summative report on the entire project.

### **Conclusion**

The PKAL call for proposal mentioned three goals: (1) increase participation of underrepresented groups in STEM courses/majors, (2) “development of a multi-disciplinary introductory STEM curriculum” and (3) impact 100,000 students.

Embedding Excel training, critical thinking about statistics (statistical literacy) and the cultural value of scientific knowledge (philosophy of science) into a multi-disciplinary STEM-based

curriculum is a unique approach to fostering scientific literacy. Enhancing scientific literacy is a new doorway for attracting under-represented mathematically-proficient students (mainly women) into STEM courses/majors. With rapid dissemination, this project can assist PKAL in impacting 100,000 students on becoming STEM majors.

**Benefit to Students:** By focusing on job skills (Excel) and student appreciation (Statistical and scientific literacy) this minor may set a new direction for science education. With this softer approach, they may find STEM courses more interesting, useful and valuable.

**Benefit to PKAL:** By supporting this proposal, the AAC&U can demonstrate how the humanities can connect with the sciences and bridge C. P. Snow's "two cultures," increase the prevalence of under-represented groups in STEM, and influence thousands of students to take STEM courses they find interesting, useful and valuable.

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**TIDES PROPOSAL BUDGET**

<b>INSTITUTION</b>	Augsburg College
<b>PRINCIPAL INVESTIGATOR</b>	Milo Schield, PhD



				YEAR 1	YEAR 2	YEAR 3	TOTAL
<b>PERSONNEL</b>							
		<b>NAME</b>	<b>ROLE ON PROJECT</b>				
	1	Milo Schield	PI/Project Team	\$ 22,000	\$ 22,000	\$ 11,000	\$ 55,000
	2	Larry Crockett	Project Team	\$ 11,000	\$ 11,000	\$ -	\$ 22,000
	3	Amy Gort	Project Team	\$ -	\$ -	\$ -	\$ -
<b>OTHER PERSONNEL</b>							
	4	Marc Isaacson	Project Team	\$ 16,000	\$ 8,000	\$ -	\$ 24,000
	5			\$ -	\$ -	\$ -	\$ -
	6			\$ -	\$ -	\$ -	\$ -
	7			\$ -	\$ -	\$ -	\$ -
	8	*Add additional names of personnel in Budget Justification. Insert additional personnel totals in this row.		\$ -	\$ -	\$ -	\$ -
<b>FRINGE</b>				\$ 3,749	\$ 3,137	\$ 842	\$ 7,727
<b>TOTAL SALARIES, WAGES AND FRINGE</b>				\$ 52,749	\$ 44,137	\$ 11,842	\$ 108,727

<b>TRAVEL</b>	\$ 19,500	\$ 18,000	\$ 16,500	\$ 54,000
<b>EQUIPMENT</b>		\$ -	\$ -	\$ -
<b>SUPPLIES AND MATERIALS</b>	\$ -	\$ -	\$ -	\$ -
<b>CONSULTANT SERVICES</b>	\$ 3,000	\$ 3,000	\$ 6,000	\$ 12,000
<b>OTHER</b>	\$ 38,388	\$ 48,500	\$ 11,113	\$ 98,001
<b>SUBAWARDS</b>	\$ -	\$ -		\$ -

<b>SUBTOTAL (DIRECT COSTS)</b>	\$ 113,637	\$ 113,637	\$ 45,455	\$ 272,728
<b>INDIRECT COSTS (10% DIRECT COSTS)</b>	\$ 11,364	\$ 11,364	\$ 4,545	\$ 27,272
<b>TOTAL DIRECT AND INDIRECT COSTS</b>	\$ 125,000	\$ 125,000	\$ 50,000	\$ 300,000

## Budget Justification

### Key Personnel

**(\$77,000 requested)**

*Milo Schield, PhD. Principal Investigator, Y1 & Y2: 2 summer months; Y3: 1 summer month.*

Dr. Schield, Professor of Business Administration, will be responsible for the overall implementation and execution the proposed project. Specifically, he will work with the Academic Affairs committee to create the Science-Skills minor, support individual course enhancements, and oversee project dissemination. He will oversee the faculty training materials, the Statistical Literacy textbook updates, the Moodle exercise updates and planning the Odyssey challenges. He has primary responsibility for the Statistical Literacy course. Dr. Schield will also manage the project budget and complete project reporting requirements.

*Larry Crockett, PhD, Co-PI/Project Team, Y1 & Y2: 1 summer month.*

Dr. Crockett, Professor of Computer Science, will support Dr. Schield with the implementation and execution the proposed project. Specifically, he will be responsible for enhancing the Augsburg Philosophy of Science course (PHI365) to focus on why studying science is a cultural value – and not just knowledge for the sake of knowledge. He will be responsible for disseminating information on this new minor to Augsburg students in the honors program and to non-honors students in the liberal arts and social sciences.

*Amy Gort, PhD, Co-PI/Project Team, no salary support requested.*

Dr. Gort, Assistant Vice President of Academic Affairs and Dean of the Arts and Sciences will provide administrative oversight and guidance for the proposed project. As a member of the Academic Affairs Committee, Dr. Gort will work with Dr. Schield and project team in securing approvals for course enhancement and creation of the Science-Skills minor.

### Other Personnel

**(\$24,000 requested)**

*Marc Isaacson, MS, Co-PI/Project Team, Y1 : 2 Summer months; Y2: 1 Summer Month.*

Professor Isaacson, Assistant Professor of Business Administration, will support Dr. Schield with the implementation and execution the proposed project. Specifically, he will be responsible for creating student activities in two courses: the problem-based Excel course and the Statistical Literacy for Managers course. He will have total responsibility for the online faculty training program and for the Excel Problem Solving course.

### Fringe Benefits

**(\$7,727 requested)**

Fringe benefits have been calculated at 7.65% (FICA).

### Travel

**(\$54,000 requested)**

Travel expenses are budgeted for three members of the project team to attend the four-day AAC&U STEM Institute in Washington, DC and the three-day AAC&U STEM Conference during

each year of the project. Additional travel is also requested to support project dissemination activities. Travel expenses include round trip transportation, lodging, meals, and registration.

Year 1: AAC&U STEM Institute: \$2,500/trip x 3 individuals = \$7,500  
AAC&U STEM Conference: \$2,500/trip x 3 individuals = \$7,500  
TBD, Dissemination Conference: \$1,500/trip x 3 individuals = 4,500  
Year 2: AAC&U STEM Institute: \$2,500/trip x 3 individuals = \$7,500  
AAC&U STEM Conference: \$2,500/trip x 3 individuals = \$7,500  
Dissemination Conference: \$1,500/trip x 2 individuals = 3,000  
Year 3: AAC&U STEM Institute: \$2,500/trip x 3 individuals = \$7,500  
AAC&U STEM Conference: \$2,500/trip x 3 individuals = \$7,500  
Dissemination Conference: \$1,500/trip x 1 individuals = \$1,500

**Equipment** **(\$0 requested)**  
None.

**Supplies and Materials** **(\$0 requested)**  
None.

**Consultant Services** **(\$12,000 requested)**  
**Tom Burnham**

Consultant Tom Burnham will be responsible for (1) Checking the accuracy and readability of the newly developed training materials, (2) verifying that the web-based sites are operating properly and making any necessary changes or fixes, and (3) responding to participant problems with any of the software systems. Total cost: \$5,000 over three years.

*TBD, Campus Compact Evaluation Consultant*

An external evaluator will be hired to support overall project evaluation. The evaluator will provide interim assessment and recommendations in years one and two and conduct a final review and prepare a report at the end of year three. Total cost: \$7,000 over three years.

**Other Direct Costs** **(\$98,001 requested)**  
**Computer Services**

Funds are requested to convert the existing web site ([www.StatLit.org](http://www.StatLit.org)) from Front page to a current product such as MS Expression or WebMatrix. This website has an outstanding reputation as the largest site dedicated entirely to statistical literacy. It is the home of the US International Statistical Literacy Project (ISLP). This upgrade and maintenance (\$31,001) will allow for the expansion needed to handle this project and reach out to faculty at other schools. This type of dissemination is necessary to achieve the PKAL-TIDES goal of impacting 100,000 students.

### *Web-Training Videos*

\$1,500 is budgeted to support a series of 10 minute web training videos in year 2.

### *Stipends*

Stipends will be provided to faculty and teachers who review training curriculum, beta test, teach curriculum in the classroom, or complete online training. Stipends will also be available to Faculty and Students adopting the Science-Skills Minor.

Year 1: \$200 x 10 Reviewers (previously trained faculty) = \$2,000;

\$100 x 20 Reviewers (local college faculty) = \$2,000

\$200 x 25 Online Beta Testers (Statistical Literacy) = \$5,000

\$1,000 x 6 Science-Skills Minor (faculty at other colleges) = \$6,000

\$100 x 20 Science-Skills Minor (students) - \$2,000

Year 2: \$2,000 x 10 curriculum users (5 community college + 5 four year college) = \$20,000;

\$20 x 50 trainees (online statistical literacy) = \$1,000

\$1,000 x 8 Science-Skills Minor (faculty at other colleges) = \$8,000

\$100 x 20 Science-Skills Minor (students) - \$2,000

Year 3: \$1,000 x 4 curriculum users (community colleges) = \$4,000

\$1,000 x 4 Science-Skills Minor (faculty at other colleges) = \$4,000

### *Statistical Literacy/Info Analyst Conferences*

Funding is requested to host an annual statistical literacy /info analyst conference at Augsburg College in each year of the grant. Expenses are estimated at \$5,000 in year 1 and \$3,500 in year 2 and \$1,000 in year 3 include advertising, facilities, and food for participants.

### **Subawards**

**(\$0 requested)**

None.

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**Subtotal (Direct Costs): \$272,728**

### **Indirect Costs: \$27,272**

Indirect costs have been calculated at 10% of Total Direct Costs per program guidance.

**Total Direct and Indirect Costs: \$300,000**



CV  
**DR. MILO A. SCHIELD, Principal Investigator (PI)**

**Professional Preparation:**

Iowa State University	Physics	B.S. 1962
University of Illinois	Physics	M.S. 1964
Rice University	Space Physics	Ph.D., 1968

**Appointments:**

Augsburg College	Department of Business Administration	1985
St. Paul Companies	Senior Operations Researcher	1978
Fox and Co., CPA	Senior Consultant	1975
Bantam Data, Inc.	President	1972
Schild Stock Service, Inc.	President	1970
University of Iowa	Instructor, Physics Department	1968

**Products (limited to 10):**

Ten significant publications are closely related to this project. The first six are peer-reviewed. For theoretical papers on the mathematics of confounding, see Burnham's biographical sketch.

1. Schield, Milo (2004a). Statistical Literacy and Liberal Education at Augsburg College. *Peer Review*, Sept. 2004, 7-14. American Assoc. of Colleges and Universities. See [www.StatLit.org/pdf/2004SchieldAACU.pdf](http://www.StatLit.org/pdf/2004SchieldAACU.pdf).
2. Schield, Milo (2006b). *Presenting Confounding and Standardization Graphically*. Draft for STATS Magazine. At [www.StatLit.org/pdf/2006SchieldSTATS.pdf](http://www.StatLit.org/pdf/2006SchieldSTATS.pdf).
3. Schield, Milo (2004b). Information Literacy, Statistical Literacy and Data Literacy. *IQ (IASSIST Quarterly)*, 7-14. See [www.StatLit.org/pdf/2004SchieldIASSIST.pdf](http://www.StatLit.org/pdf/2004SchieldIASSIST.pdf).
4. Schield, Milo (2004c). *Statistical Literacy Curriculum Design*. IASE Curriculum Design Roundtable. See [www.StatLit.org/pdf/2004SchieldIASE.pdf](http://www.StatLit.org/pdf/2004SchieldIASE.pdf).
5. Schield, Milo (2008b). Quantitative Literacy and School Mathematics: Percentages and Fractions, *Calculation vs. Context: Quantitative Literacy And Its Implications for Teacher Education*. Edited by Bernard L. Madison and Lynn Arthur Steen. 2008 Mathematical Association of America. P. 87-107. See [www.statlit.org/pdf/2008SchieldMAA.pdf](http://www.statlit.org/pdf/2008SchieldMAA.pdf) or [www.maa.org/QI/cvc/cvc-087-107.pdf](http://www.maa.org/QI/cvc/cvc-087-107.pdf).
6. Schield, Milo (2011b). Statistical Literacy: A New Mission for Data Producers. *Statistical Journal of the International Association of Official Statistics*. 27 (2011) 173–183. Edited by N. Davies and J. Ridgway. DOI 10.3233/SJI-2011-0732 See [www.StatLit.org/pdf/2011SchieldSJIAOS.pdf](http://www.StatLit.org/pdf/2011SchieldSJIAOS.pdf)
7. Schield, Milo (2004d). *Three Graphs to Promote Statistical Literacy*. International Conference on Mathematics Education (ICME-10). See [www.StatLit.org/pdf/2004SchieldICME.pdf](http://www.StatLit.org/pdf/2004SchieldICME.pdf).
8. Schield, Milo (2005a). *Statistical Prevarication: Telling Half Truths Using Statistics*. 2005 International Assoc. of Statistical Educators (IASE). Invited paper, Sydney. At [www.StatLit.org/pdf/2005SchieldIASE.pdf](http://www.StatLit.org/pdf/2005SchieldIASE.pdf).
9. Schield, Milo (2006a). *Statistical Literacy Survey Analysis: Reading Tables and Graphs of Rates and Percentages*. International Conference on Teaching Statistics. At [www.StatLit.org/pdf/2006SchieldICOTS.pdf](http://www.StatLit.org/pdf/2006SchieldICOTS.pdf).
10. Terwilliger, Jim and Milo Schield (2004). *Frequency of Simpson's Paradox in NAEP Data*. Presented at the American Educational Research Association. See [www.StatLit.org/pdf/2004TerwilligerSchieldAERA.pdf](http://www.StatLit.org/pdf/2004TerwilligerSchieldAERA.pdf).

### **Synergistic Activities (limited to five examples):**

1. He has taught traditional statistics for over 20 years; he has taught critical thinking at the undergraduate level for 6 years and at the graduate level for two; he has taught statistical literacy to students in non-quantitative majors for the past 18 years.
2. He is the US Representative to the International Statistical Literacy Project. He has served as the President of the Twin Cities chapter of the ASA and the Vice President of the National Numeracy Network. He is an elected member of the International Statistical Institute.
3. He has given papers on philosophy and the philosophy of science.
  - Schield, Milo (2004). Resolving Three Key Problems in the Humanities. *The International Journal of the Humanities*. Vol. 2, Num. 3. P. 2375-2385. See [www.StatLit.org/pdf/2004SchieldNDIH.pdf](http://www.StatLit.org/pdf/2004SchieldNDIH.pdf).
  - Schield, Milo (2005). Making Science a Core Liberal Art for the 21st Century. Project Kaleidoscope. See [www.StatLit.org/pdf/2005SchieldPKAL.pdf](http://www.StatLit.org/pdf/2005SchieldPKAL.pdf).
4. He has organized sessions on statistical literacy at the last 13 national meetings of the American Statistical Association. Speakers have included Dr. Donald Rubin (Harvard), Dr. Joel Best, author of *Damned Lies and Statistics*, Joe Abramson, author of *Making Sense of Data*, Nicholas Eberstadt, author of *The Tyranny of Numbers*, Jessica Utts, author of *Seeing Through Statistics*, Robyn Dawes, author of *Everyday Irrationality*, Vic Cohen, author of *News and Numbers*, Tom Wonnacott, author of numerous statistics textbooks and Jane Miller, author of *The Chicago Guide to Writing about Numbers*.
5. He has been recognized by his peers. In his book, *More Damned Lies and Statistics*, author Joel Best titled the last chapter, *Toward Statistical Literacy*. After noting the many problems facing this movement, he said, “*Despite these obstacles, a small educational movement advocating statistical literacy has emerged. Professor Milo Schield, Director of the W. M. Keck Statistical Literacy Project at Augsburg College in Minneapolis, is the movement’s leading voice.*”

### **Collaborators and Co-Authors:**

Tom Burnham, Cognitive Consulting in San Antonio, TX.

Jim Terwilliger, Minnesota Department of Education, NAEP Coordinator for the State of Minnesota.

**Thesis advisor and Post-graduate Sponsor:** None.

Larry J. Crockett  
Department of Computer Science/Honors Program  
Campus Box 90  
Augsburg College  
Minneapolis, MN 55454  
crockett@augsborg.edu/612-330-1060

#### Education

B.A., Pacific Lutheran University, 1971.  
M.A., Pacific Lutheran University, 1973.  
M.Div., Luther Seminary, 1977.  
Ph.D., philosophy of science/computer science, University of Minnesota, 1990.

#### Honors and Awards

Rockefeller Fellowship, Princeton Seminary and University, 1973-1974.  
Outstanding Teaching Award, Metro State University, 1985.  
Honored Faculty Award, 1996, 1998, 2001, Augsburg,  
John Templeton Prize for Teaching in Science and Religion (with Bruce Reichenbach),  
1996-1998.  
ELCA Summer Grant for Research, University of the South, Sewanee, TN, 1998.  
National Science Foundation Grants, 1990-1991, 1997-1999.  
Visiting Scholar, Luther Theological Seminary, 2006.  
Instructional and Course Design Grant, Augsburg, 2012.  
Visiting Scholar, Tennessee Technological University, 2013.  
Innovation Fund Grant, Augsburg 2014.

#### Association Memberships

Metanexus Association.  
Zygon Center for Science and Religion.  
National Collegiate Honors Society.  
Association of Computing Machinery.

#### Professional Experience

Adjunct Faculty, Metro State University, 1981-1989.  
Assistant Professor of Computer Science, Augsburg College, 1985-1991.  
Director of the Honors Program, Augsburg College, 1988-2005.  
Associate Professor of Computer Science, Augsburg College, 1992-1998.  
Professor of Computer Science, Augsburg College, 1998-present.  
Interim Associate Dean, Academic Affairs, Augsburg College, 1999-2000.  
Interim Director of the Honors Program, 2008.

#### Current Research

Primary focus is the implications of computer science for philosophy of science, especially the implications of computer simulation for traditional questions in philosophy of science. Also exploring the pragmatist foundations of object-oriented programming in computer science.

“Does Rortyan Neo-Pragmatism Expose the Implicit Deficiencies of Classical Pragmatism?”  
submitted to the *European Journal of Pragmatism and American Philosophy*.

Will be presenting “Implications of HTML5 for Collegiate Game-Based Curricula,”  
International Educational/Serious Games Conference in Berlin, Oct. 9-11, 2014, funded by  
Innovation Fund, Augsburg College.

#### Teaching Experience

- CSC: Introduction to Computing for the Liberal Arts
- CSC: Introduction to Computing and Communications
- CSC: Introduction to Programming
- CSC: Introduction to Data Structures
- CSC: Artificial Intelligence
- CSC: Computer Architecture
- CSC: Symbolic Logic
- CSC: Web Page Theory and Design
- CSC: Game Programming on the Web
- HON: Introduction to Honors (with Joan Griffin)
- HON: Scholar Citizen
- HON: Scholar Scientist
- HON: Introduction to Computing and Communications (NSF Grant)
- HON: Scholar Scientist (with Tracy Bibelnicks)
- HON/REL: C. S. Lewis and the Christian Imagination
- HON/REL: Science and Religion (with Bruce Reichenbach)
- REL: Denominations
- REL: Christian Vocation and the Search for Meaning
- REL: Religion and Science in Popular Culture
- PHIL: Philosophy of Science
- PHIL: 20th Century Philosophy
- PHIL: Logic
- PHIL: Senior Seminar (with Bruce Reichenbach)
- INS: Divided States of America? A Seminar in Pragmatism

#### Selected Professional Presentations

- “Periodicity and the Problem of Induction,” 27th Annual Midwest Instruction and Computing Symposium, April, 1994, Winona State University, Winona, MN.
- “Class Four Systems and Computer Simulation,” Computers and Philosophy Conference, Stanford University, July, 1996.
- “Cellular Automata and Computer Simulation,” Computers and Philosophy Conference, Carnegie Mellon University, July, 1997.
- “Philosophy and Computer Simulation,” Philosophy Colloquium, Bethel University, January 2001.
- “Radical Heterodoxy in Science and Radical Orthodoxy in Christianity: The Implications of Wolfram's Revolt in Science for Radical Orthodoxy in Theology,” Metanexus Conference, July, 2005, Philadelphia, Penn, published in *Proceedings*.

“Science and Beauty,” “Called to Lead” series, organized by David Tiede and Tom Morgan, spring, 2010, Augsburg College.

“Rortyan Neo-Pragmatism and Classical Pragmatism,” National Collegiate Honors Council, Boston, Massachusetts, Nov. 3, 2012.

#### Selected Refereed Publications

“Universal Assembly Language,” *Computer Language*, October, 1986.

*Universal Assembly Language*, McGraw-Hill (with Robert M. Fitz), 1986.

“Using Cellular Automata to Teach Complexity Theory,” in Grayson, Lawrence P., *Frontiers in Education*, American Society for Engineering Education, 1993.

*The Turing Test and the Frame Problem*, Ablex Series in Artificial Intelligence, Yorick Wilks, editor, 1994.

“Inductive Explorations with Class 2 Systems,” *Computer Science Education* 5, 1994.

“The Oxford Movement and the 19th-Century Episcopal Church: Anglo-Catholic Ecclesiology and the American Experience,” *Quodlibet Journal* (August, 1999).

“Fundamental Issues in Honors Teaching: Data, Information, Knowledge and Wisdom on the Wired Campus,” in Fuiks and Clark, *Teaching and Learning in Honors*, NCHC monograph, 2002.

“Using Technology in the Honors Classroom,” in Fuiks and Clark, *Teaching and Learning in Honors*, NCHC monograph, 2002.

“The Serpent’s Trail: William James, Object-Oriented Computing, and Critical Realism,” *Zygon: Journal of Religion and Science*, June, 2012.

“Replacing Appearance with Reality,” in Buckner and Garbutt, *The Other Culture: Science and Mathematics Education in Honors* (NCHC monograph series, Buckner and Garbutt, ed., fall 2012).

#### In Preparation

*The Storyteller and the Robot: Science and Religion in the Age of Computer Simulation.*

#### References

Noel Petit, Chair, Department of Computer Science, Augsburg College.

Tracy Bibelnieks, Assoc. Professor of Mathematics, Augsburg College.

Paul Reasoner, Professor of Philosophy, Bethel University. 3900 Bethel Drive, St. Paul, MN 55112-6999. 651.638.6400

Lawrence Clark, Professor of Psychology, Southeast Missouri State University. Phone: (573) 651-2448. E-Mail: [lclark@semo.edu](mailto:lclark@semo.edu).

Amy Strohmeier Gort

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Apple Valley, MN 55124  
952-818-4643  
asgort@gmail.com

**Education:**

Ph.D. in Microbiology, 1998  
University of Illinois at Champaign-Urbana  
Dissertation: Superoxide Toxicity in *Escherichia coli*  
Advisor: Dr. James Imlay

M. S. in Microbiology, 1996  
University of Illinois at Champaign-Urbana

B. S. in Bacteriology, 1993  
University of Wisconsin-Madison

**Professional Experience:**

Assistant Vice President of Academic Affairs and Dean of Arts and Sciences  
Augsburg College  
July 2009- present

Responsibilities: Supervise 32 academic support staff in 8 different program areas; oversee 23 academic departments and programs; contribute to strategic planning efforts for the Academic Affairs division; lead institutional accreditation projects for the Higher Learning Commission; contribute to academic program development and collaborations; lead institutional assessment of student learning activities; provide leadership to support faculty and staff engagement in the program development for the Center for Science Business and Religion; chair Academic Affairs Committee which is charged with oversight of the undergraduate academic programs; oversee faculty workload and course scheduling; oversee annual revisions of the undergraduate catalog; and serve on the admissions committee.

- Chaired Gage Center for Student Success Planning Task Force to develop an integrated program plan for five academic support services programs.
- Served on the committee to design the physical Gage Center for Student Success in the library working with architects in design development.
- Developed a process for requesting new faculty positions and prioritizing requests based on market, enrollment trends and current full-time faculty staffing levels.
- Led annual activities for AQIP accreditation through the Higher Learning Commission including AQIP Action Project development, Action Project evaluation and reports, development of a Systems Portfolio, and planning for a Quality Checkup.
- Contributed to the development of Institutional Advancement proposals for the Gage Center for Student Success, the Strommen Center for Meaningful Work, the Center for Learning and Adaptive Student Services, and the Center for Science, Business and Religion.
- Led discussions with faculty and colleagues at local community colleges to support the development of articulation agreements and other collaborative projects.
- Developed and led engagement activities for faculty and staff to support the Center for Science Business and Religion

Amy Strohmeier Gort

- Developed and led assessment workshops to support faculty in their assessment of core graduation skills and majors or programs.
- Contributed to the Campus Space and Master Plan as a committee member and by engaging faculty and staff in focus groups and discussions.

Interim Vice President of Academic Affairs and Dean of the College  
Augsburg College  
March 2011- June 2011

Responsibilities: Supervised all staff in the Academic Affairs division; oversaw all academic department and programs; served on the President's Cabinet; provided leadership to support the Academic Affairs Committee of the Board of Regents; developed the Academic Affairs division budget of for FY12, worked with Faculty Senate Chair and Faculty Senate Committees to support the work of the faculty; served on the Committee on Tenure and Promotion during Third-Year Reviews; and served on the Personnel Policies Committee.

- Prioritized budget requests and allocations to contribute to a balanced budget for the College.
- Presided over the annual faculty recognition luncheon, Honors Convocation and Commencement.
- Chaired the full faculty meeting in May.
- Led planning for a campus memorial service for a faculty member who died and developed the interim staffing plan for her program.
- Interviewed faculty candidates, made job offers and negotiated salary and starting packages.
- Oversaw the third-year review appeal process for two faculty members.
- Provided leadership to the Dean's Council
- Developed agenda for the Academic Affairs Committee of the Board of Regents.
- Represented the Cabinet at Institutional Advancement events such as a Board of Regents reception and a women alumni event.

Dean of the College of Arts and Sciences  
Concordia University, St. Paul  
July 2007-June 2009

Responsibilities: Supervised 1 staff member; oversaw 13 academic departments and programs; developed and managed College of Arts and Sciences budget; oversaw the hiring process for new faculty members; built relationships with community partners to support underrepresented students; led development of new academic programs; and led institutional assessment of student learning activities.

- Worked with department chairs to develop annual evaluation criteria for faculty members and the evaluation process for the College of Arts and Sciences.
- Led discussions with faculty and colleagues at local community colleges to support the development of articulation agreements and other collaborative projects.
- Led efforts with student services and admissions to develop On-Site Post-Secondary Education Options that allowed Concordia University to offer college courses at high school sites.
- Led development of Bachelor of Science degrees in for majors and oversaw their approval at the level of the college, the institution, the state and regional accreditation.
- Partnered with Q Health to obtain a DNA Day grant from the National Institutes of Health to support science activities and programs from urban high schools.

Amy Strohmeier Gort

Chair of the Biology Department  
Concordia University, St. Paul  
January 2006-July 2007

Responsibilities: Oversaw and mentored two full-time faculty members and several adjunct faculty members; chaired search committees for new faculty positions; served as curriculum coordinator; develop new biology initiatives to support student research; coordinated major assessment of student learning activities; coordinated recruitment activities.

- Led the development of a revised biology major to respond to discipline standards and workforce needs.
- Developed the biology curriculum report for the Minnesota Board of Teaching to demonstrate compliance with teacher licensure standards.
- Coordinated the development of learning outcomes for the biology major, descriptive rubrics to assess student achievement and the implementation of eLumen assessment software to collect and aggregate student data.
- Led collaboration with colleagues from Northwestern College to build the Science Research Institute which is a summer program that engages high school students, college students, high school teachers and college faculty in research projects.
- Developed budget for the Science Research Institute and authored proposals to local foundations to receive start-up and continued funding based on the success of the program (total funds exceeded \$160,000).
- Developed and coordinated assessment of student learning activities for the Science Research Institute.

Associate Dean of Academic Affairs  
Concordia University, St. Paul  
May 2005-July 2007

Responsibilities: Oversaw of institutional assessment of student learning activities; chaired Assessment Council; served on the Budget Task Force; served on the Dean's Council; served on the Steering Committee for Accreditation; and served on the Master Planning committee.

- Developed and implemented a comprehensive plan to assess student learning using standard rubric tools and customized the assessment software, eLumen, to collect data (the institutional assessment plan received a special note of commendation from the site team as part of the Higher Learning Commission accreditation process).
- Participated in the development of the framework for the institutional self-study for PEAQ accreditation by the Higher Learning Commission.
- Engaged faculty and staff in the process of gathering evidence to support the self-study.
- Authored the chapter of the self-study focused on Criterion Three: Student Learning and Effective Teaching.
- Participated in strategic planning.



## Amy Strohmeier Gort

Undergraduate Student Research Coordinator  
Concordia University, St. Paul  
January 2005-May 2008

Responsibilities: Led development of a strategic plan for undergraduate student research; developed mini-grant criteria and application process to facilitate funding of undergraduate student research; and chaired the Student Research Committee.

- Developed and coordinated the annual Concordia University Research and Scholarship Symposium.
- Planned and delivered faculty development workshop to enhance student research mentoring.

Assistant Dean of the College of Arts and Sciences  
Concordia University, St. Paul  
May 2003-May 2005

Responsibilities: Served as College Assessment Coordinator; Summer School Coordinator; and Dean's Scholarship Coordinator.

- Supported the development and revision of assessment plans by departments.
- Represented the College of Arts and Sciences on the Assessment Council.
- Recruited faculty to offer summer school courses.
- Worked with marketing and admissions to recruit students for summer school offerings.
- Developed the criteria for Dean's Scholarship award and the application process.
- Worked with the Director of Financial Aid and department chairs to manage the Dean's Scholarship awards.

Biology Faculty Member  
Concordia University, St. Paul  
January 2001-July 2009

Responsibilities: Developed course and laboratory curriculum; maintained active research projects; mentored student researchers; served as an advisor for students with interests in biology; participated in first-year experience course development and delivery; assessed student learning; supervised student workers; prepared laboratory reagents and cultures; and ordered supplies.

- Developed and taught many biology courses: Biology I and II; Microbiology; Cell Biology; Genetics; Biochemistry; Bacterial Pathogenesis; Biology Research; and Special Topics in Biology.
- Developed a collaboration to initiate research studying the role of the heat-shock protein, HSP104, in prion development in yeast.
- Collaborated with colleagues and students on a research project to explore the link between the Human Papilloma Virus and breast cancer.

Postdoctoral Research Fellow  
Washington University, St. Louis, MO  
Mentor: Dr. Virginia Miller  
September 1998-December 2000

Responsibilities: Developed independent research project; conducted research; and mentored graduate student researchers.

- Received and National Research Service Award research fellowship from the National Institutes of Health to support my research.
- Awarded a Post-doctoral Training Grant Fellowship from the National Institutes of Health.

### Research and Scholarship:

#### *Publications*

- Gort, A. S., Kieke, M. C., Moroz, K. and M. Luebke. 2008. From Isolated to Collaborative: Assessing Student Learning using Technology and Rubrics. A Collection of Papers on Self-Study and Institutional Improvement, Higher Learning Commission, Vol. 2, Chapter 4, pages 2:114-117.
- Kieke, M. C., Moroz, K. and A. S. Gort. 2007. The Transformation to a Learner-Centered Community as a Result of University-Wide Assessment. *On the Horizon*. **15**(2): 107-117.
- Gort, A. S. and V. L. Miller. 2000. Identification and Characterization of *Yersinia enterocolitica* Genes Induced during Systemic Infection. *Infection and Immunity*. **68** (12): 6633-6642.
- Gort, A. S., Ferber, D. M. and J. A. Imlay. 1999. The Regulation and Role of the Periplasmic Copper, Zinc Superoxide Dismutase of *Escherichia coli*. *Molecular Microbiology*. **32** (1): 179-191.
- Gort, A. S., and J. A. Imlay. 1998. The Balance Between Endogenous Superoxide and Antioxidant Defenses. *Journal of Bacteriology*. **180** (6): 1402-1410.
- Keyer, K., Gort, A. S. and J. A. Imlay. 1995. Superoxide and the Production of Oxidative DNA Damage. *Journal of Bacteriology*. **177** (23): 6782-6790.

#### *Recent Oral Presentations*

- Gort, A. S. and P. Pribbenow. 2011. Integrating Mission, Vision and Vocation: A Model for Strategic Thinking. Higher Learning Commission General Meeting, Chicago, IL.
- Gort, A.S. and L. Bakke. 2008. Interested in a career in teaching or academic administration? Office of Post Graduate Affairs, Washington University, St. Louis, MO.
- Gort, A. S., Kieke, M. C., Luebke, M. and K. Moroz. 2008. From Isolated to Collaborative: Assessing Student Learning using Technology and Rubrics. Higher Learning Commission General Meeting, Chicago, IL.
- Moroz, K. and A. S. Gort. 2006. Using Technology to Facilitate University-Wide Assessment. Colleges of the Future. St. Thomas University, Minneapolis, MN.
- Gort, A. S., 2005. University-wide Assessment at Concordia University, St. Paul. Council of Colleges of Arts and Sciences Annual meeting, Vancouver, BC.
- Luebke, M. L. and A. S., Gort. 2005. Hitting the Wall: Using Technology to Move from Individual Assessment to Institution-wide Results. The Collaboration Annual Meeting, Bloomington, MN.
- Gort, A. S. and B. Leung. 2004. Insight into the Physiology of Breast Cancer: New Treatment Ideas. Concordia University Convocation.
- Gort, A. S., 2004. Using Bacteria to Show how DNA Damage Occurs During Normal Growth. Faculty Retreat, Concordia University, St. Paul, MN.
- Gort, A. S., 2004. Superoxide and Oxidative DNA Damage. Department of Biology, Augsburg College, Minneapolis, MN.

#### *Recent Poster Presentations*

- Gort, A. S., Kieke, M. C., and K. Moroz. Invited to present poster Feb. 2009. A Collaborative Process for Assessment of Student Learning in General Education: A Springboard to Enhanced

## Amy Strohmeier Gort

Campus-wide Assessment. American Association of Colleges and Universities (AACU), Baltimore, MD.

- Kieke, M.C., Klein, J. and A. S. Gort. 2008. The Science Research Institute (SRI): A Model for Enhancing Student Interest and Competency in Science. Council for Undergraduate Research Annual Meeting, Collegeville, MN.
- Lindberg, T., Maxfield, D., Smithson, L. Gort, A. S., Leung, B. S. and M. C. Kieke. 2005. siRNA Inactivation of HPV in Cervical Cancer Cells. Concordia University Research and Scholarship Symposium.
- Meyer, K. J. and A. S. Gort. 2004. Hydrogen Peroxide Toxicity. Concordia University Research and Scholarship Symposium.

### *Professional Funding and Awards*

- “DNA Day Essay Contest and Symposium”, collaboration between Concordia University, Q Health, and the Science Research Institute to obtain \$10,000 funding for DNA Day events from the National Institutes of Health for April 2009.
- Faculty Development Grant through Concordia University, St. Paul. 2008. The award funded my research in collaboration with Dr. Leanne Bakke to characterize the role of HSP104 in prion formation in yeast.
- “Science Research Institute”, collaboration of faculty from Concordia University, St. Paul and Northwestern College to engage high school students, high school faculty, college students and college faculty in research. Received \$95,000 from Boston Scientific, Medtronic and H.B. Fuller to fund 2008-2009 program.
- “Science Research Institute”, collaboration of faculty from Concordia University, St. Paul and Northwestern College to engage high school students, high school faculty, college students and college faculty in research. Received \$45,000 from Boston Scientific, Medtronic and Cargill to fund a pilot in 2007-2008.
- Awarded a Thrivent Associates Fellowship, summer 2006-present. Leadership program for those engaged in Lutheran Higher Education.
- “Identification of Diagnostic Proteins Released by Breast Tumors Infected with Human Papillomavirus” Walt, K. and A. S. Gort. Awarded a Bush Foundation Student Research Fellowship, summer 2006.
- “Exploring the Molecular Role of Human Papilloma Virus (HPV) in Breast Cancer Cells Infected with HPV-18”. Kieke, M. C. and A. S. Gort. Research proposal submitted to the Department of Defense. Request denied..
- Faculty Development Grant through Concordia University, St. Paul. 2005. The award funded my research in collaboration with Dr. Michele Kieke and Dr. Benjamin Leung to characterize the link between Human Papilloma virus and breast cancer.
- Faculty Development Grant through Concordia University, St. Paul. 2002. The award funded my research to characterize superoxide-mediated DNA damage in *Escherichia coli*.
- Bush Foundation Student Learning Grant proposal from Concordia University, St. Paul. 2002. The award funded the acquisition of DNA analysis equipment and software for general and upper-level biology courses. Funding also allowed for a visit by Dr. Charles Kunert to act as a consultant in the development of a research-centered biology curriculum.
- National Research Service Award research fellowship from the National Institutes of Health. 1999-2000. The award funded my research to identify virulence factors in *Yersinia enterocolitica*.

## Amy Strohmeier Gort

- Training grant fellowship from the National Institutes of Health and Washington University, St. Louis, MO. 1998-1999. The award funded my research to identify virulence factors in *Yersinia enterocolitica*.

### **Community Service and Engagement:**

#### *Recent Professional Service*

- Participated on a team to develop a VALUE rubric to assess ethical reasoning for the American Association of Colleges and Universities (AACU), 2008.-2009.
- UID Workshop. Developed workshop on Universal Instructional Design with faculty and student support services team. Workshop was held on Jan. 11, 2008 at Concordia University, St. Paul.
- Contributed materials and served as an editor for the PASS It Universal Instructional Design program. University of Minnesota. 2006-2008.
- External consultant for the Biology program at Northwestern College, St. Paul, MN. 2006.
- *Ad hoc* reviewer for MicrobeLibrary, a peer-reviewed website sponsored by the American Society for Microbiology Council on Undergraduate Education (ASMCUE), 2004.

#### *Recent Community Service*

- American Heart Association Neighbor-to-Neighbor campaign volunteer, 2003-present.
- Parent volunteer, Echo Park Elementary, 2007-present.
- Child Ministry Volunteer, River Hills United Methodist Church, 2007-present.
- Mentored high school student science capstone project, 2008.
- YMCA coach volunteer, 2008.

## CV

### Marc Isaacson, Co-Principal Investigator (Co-PI).

#### Professional Preparation:

St Olaf College	Economics and Statistics	B.S. 1994
Rensselaer Polytechnic Institute	Mfg. Systems Engineering	M.S. 1995

#### Appointments:

Augsburg College	Department of Business Administration	2002-Present
Capella University	Instructor / SME – Statistics	2004-2006
University of St Thomas	Instructor, QMCS Department	1999-Present
Innovex Incorporated	Quality Engineering Mgr.	1998-2001
R.P.I.	Teaching Assistant, Decision Sciences	1994-1996
St Olaf College	Teaching Assistant, Economics / Acctg	1991-1994

#### Products (limited to 10):

1. Isaacson, Marc (2005). Statistical Literacy – Online at Capella University. *2005 American Statistical Association Proceedings of the Section on Statistical Education* [CD-ROM] 2244-2252. See [www.StatLit.org/pdf/2005IsaacsonASA.pdf](http://www.StatLit.org/pdf/2005IsaacsonASA.pdf).
2. Isaacson, Marc (2012). Lost: Assessing Student Basic Survival Skills in the Statistical Wilderness Using Real Data. *2012 American Statistical Association Proceedings of the Section on Statistical Education* [CD-ROM] 2808-1819. See [www.statlit.org/pdf/2012-Isaacson-ASA.pdf](http://www.statlit.org/pdf/2012-Isaacson-ASA.pdf)
3. Isaacson, Marc (2011). *Where Do Statistics Come From? Setting the Table for Introductory Statistics*. Poster presented at the US Conference on Teaching Statistics, Raleigh, NC. See [www.statlit.org/pdf/2011Isaacson-Poster-USCOTS.pdf](http://www.statlit.org/pdf/2011Isaacson-Poster-USCOTS.pdf)
4. Isaacson, Marc (2006). *Statistical Literacy: Common Challenges*. Presented at the 2006 JSM of the American Statistical Association. See [www.statlit.org/pdf/2006IsaacsonASA6up.pdf](http://www.statlit.org/pdf/2006IsaacsonASA6up.pdf).
5. Isaacson, Marc (2008). Using Computer Simulated Surveys to Teach Statistics – A Preliminary Report. *2005 American Statistical Association Proceedings of the Section on Statistical Education* [CD-ROM] 3124-3130. See [www.statlit.org/pdf/2008IsaacsonASA.pdf](http://www.statlit.org/pdf/2008IsaacsonASA.pdf)

#### Synergistic Activities (limited to five examples):

1. He has taught traditional undergraduate statistics since 2002 at three different institutions. In addition, he teaches a number of Management Information Systems courses with a focus on software applications. He has served as the primary faculty and course coordinator for the Quantitative Decision Making for Managers course in the Augsburg MBA program.
2. As part of a collaboration between Augsburg College and Capella University, he served as the Subject Matter Expert in the design and development of online courses in statistics as part of the general education curriculum for Capella University. He designed three on-line courses: two statistics courses and a half-semester course in Statistical Literacy. The on-line statistical literacy course was offered 11 times in the first year. In 2005, results of his course development were presented and published at the JSM meetings of the ASA.
3. He was a founding member of the National Numeracy Network. Recently he has served as a reviewer for multiple articles in the journal Numeracy as well as the Statistics Education Research Journal. He is the current president of the Twin Cities chapter of the ASA. In the past, he has served as the secretary / webmaster of the Twin Cities chapter.

#### Collaborators and Co-Authors:

No collaborators and no co-authors

Thesis advisor and Post-graduate Sponsor: No contact in the last 48 months.

### **Tom Burnham, Cognitive Consulting in San Antonio, Texas.**

Tom is a private consultant in San Antonio, TX. He has maintained a life-long focus on issues involving epistemology, concept formation and conceptual integration. He has co-authored the following papers:

Burnham, Tom and Milo Schield (2005). An Online Grammar-parsing Program That Decodes Ordinary English Descriptions and Comparisons of Percentages and Rates. *2005 American Statistical Association Proceedings of the Section on Statistical Education*, [CD-ROM], 2202-2208. See [www.StatLit.org/pdf/2005BurnhamSchieldSA.pdf](http://www.StatLit.org/pdf/2005BurnhamSchieldSA.pdf).

Schild, Milo and Thomas Burnham (2002). Algebraic Relations between Relative Risk, Phi and Measures of Necessity and Sufficiency in 2x2 Tables. *2002 American Statistical Association Proceedings of Section on Statistical Education*. [CD-ROM], 3089 - 3094. See [www.StatLit.org/pdf/2002SchildBurnhamASA.pdf](http://www.StatLit.org/pdf/2002SchildBurnhamASA.pdf).

Schild, Milo and Thomas Burnham (2003). Confounder-induced Spuriousity and Reversal: Algebraic Conditions for Binary Data Using a Non-Interactive Model. *2003 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM], 3690 - 3697. See [www.StatLit.org/pdf/2003SchildBurnhamASA.pdf](http://www.StatLit.org/pdf/2003SchildBurnhamASA.pdf).

Schild, Milo and Thomas Burnham (2004). Confounder Resistance and Confounder Intervals for a Binary Confounder. *2004 American Statistical Association Proceedings of the Section on Statistical Education*. [CD-ROM], 2781 - 2788. See [www.StatLit.org/pdf/2004SchildBurnhamASA.pdf](http://www.StatLit.org/pdf/2004SchildBurnhamASA.pdf).

Schild, Milo and Thomas Burnham (2006). *Binary Confounders as Mathematical Objects: Confounder Influence and Confounder Intervals*. MAA conference presentation. See [www.StatLit.org/pdf/2006SchildBurnhamMAA.pdf](http://www.StatLit.org/pdf/2006SchildBurnhamMAA.pdf).

Tom is the designer and programmer of the Statistical Literacy grammar-checker program that reads ordinary English and gives students immediate feedback on their writing.

February 17, 2014

AAC&U  
Office of Undergraduate STEM Education  
1818 R Street NW  
Washington, DC 20009

Re: Support for Augsburg College's Proposal, "New Doorway to STEM: A Science-Skills Minor"

Dear Members of the Review and Selection Committee,

I am pleased to offer my full support for Dr. Milo Schield's application to the AAC&U for the Teaching to Increase Diversity in STEM (TIDES) program. The proposed project will provide non-STEM undergraduate students with a new doorway to investigate and build STEM capacities through a new Science-Skills minor. Unlike traditional approaches to retention in STEM, which focus on increasing proficiencies (specifically in mathematics) among STEM-interested students, this proposal will target mathematics proficient students pursuing majors outside of STEM. The new Science-Skills minor will incorporate six enhanced courses that in aggregate will 1) foster interest in STEM, 2) increase STEM competencies, and 3) increase student confidence in their ability to handle a STEM challenge. Not only will students develop broader skills crucial for the 21<sup>st</sup> century, but those who choose to further explore STEM coursework or a switch to a STEM major altogether will be more likely to be successfully retained, given their baseline proficiency in mathematics.

As an institute of higher education, Augsburg College educates students to be "informed citizens, thoughtful stewards, critical thinkers, and responsible leaders." This requires active, intentional, and continual engagement with diversity in the curriculum, the classroom, co-curricular activities and in our communities (social, cultural, geographical, and intellectual). This project provides a unique opportunity to revise our existing curriculum to be more responsive to our students' changing needs. In 2013, approximately 53% of our first year undergraduates were first generation; 40% were students of color; and 91.1% received financial aid. As such, Augsburg is uniquely poised to meet AAC&U's goal to empower and educate students from populations historically underrepresented in the STEM disciplines.

In the event of an award, I am committed to supporting Dr. Schield and his project team as they carry out this important work. Dr. Schield has already been in conversation with Dr. Amy Gort, Dean of Arts and Sciences, for activation of the Science-Skills minor, as well as approval for the curricular enhancements to each of the six courses. He has also received positive feedback from external private colleges interested in offering a similar pathway to STEM for their students in the humanities. Therefore, I am confident that this project is designed for and capable of rapid deployment. Additionally, the project team will have access to administrative, technical, and financial support from IT, Admissions, Administrative Accounting, and Sponsored Programs for the duration of the project.

Should you have any questions about Augsburg College or my commitment to this project, please feel free to contact me.

Sincerely,



Karen Kaivola  
Provost

2211 Riverside Avenue  
Minneapolis, MN 55454  
612-330-1000

[augsburg.edu](http://augsburg.edu)

February 17, 2014

AAC&U  
Office of Undergraduate STEM Education  
1818 R Street NW  
Washington, DC 20009

Dear Members of the Review and Selection Committee,

I am writing to offer my complete support for the proposal titled, "New Doorway to STEM: A Science-Skills Minor," submitted on behalf of Augsburg College by Dr. Milo Schield. The proposed project will provide non-STEM majors with a new doorway to investigate and build STEM confidence by creating a new Science-Skills minor. Unlike traditional approaches to retention in STEM, which focus on increasing proficiencies (specifically in mathematics) among STEM-interested students, this proposal will target mathematics proficient students interested in majors outside of STEM. The new Science-Skills minor will incorporate six enhanced courses that in aggregate will foster interest in STEM, increase STEM competencies, and increase student confidence in their ability to handle a STEM challenge. This proposal will effectively bridge "two cultures" by connecting the humanities with the sciences in a way that will increase the prevalence of underrepresented students in STEM. Not only is this supportive of the AAC&U's goal to significantly enhance underrepresented student interest, competencies, and retention, particularly in the computer sciences and related STEM disciplines, it embraces the vision for Augsburg's future Center for Science, Business, and Religion, a first-of-its-kind education center that fosters learning and critical thinking across academic disciplines.

The principal investigator of this project, Dr. Schield has the leadership and technical expertise to support this initiative. He is a Professor of Business Administration and an elected member of the International Statistical Institute (ISI) with over 60 papers on statistical literacy. He is the US coordinator of the International Statistical Literacy Project ([www.StatLit.org/Schild.htm](http://www.StatLit.org/Schild.htm)) and has received grant funding from the W.M. Keck Foundation Statistical Literacy research. The other members of the project team, Dr. Larry Crockett, Professor of Computer Science and Marc Issacson, Assistant Professor of Business Administration bring valuable perspective and experience related to computer science, philosophy of science, and honors programming. I am confident in this team's abilities and know that students will benefit by developing broader skills that will support their general education.

I am fully committed to supporting Dr. Schield's success in carrying out this program. All members of the project team will be granted adequate summer support to implement all program activities. The Academic Affairs Committee will provide guidance and prompt review and approval of new minor and curricular enhancements taking place as part of this project. The team will also have access to the Offices of Sponsored Programs and Administrative Accounting to support the administrative and financial management of the grant. Finally, as a member of the project team, I will also be available for additional assistance for the duration of the project.

If you have any questions about Milo's qualifications or my commitment to this project, please feel free to contact me.

Best Regards,



Amy Strohmeier Gort, Ph.D.  
Assistant Vice President of Academic Affairs and Dean of Arts and Sciences

2211 Riverside Avenue  
Minneapolis, MN 55454  
612-330-1000

[augsborg.edu](http://augsborg.edu)