An Ongoing Study Determining the Best Support Programming
for Students in Need, Part II: Solving the Finite Mathematics Quandary

Conducted by the Student Academic Center,
with the Department of Mathematics and the Academic Support Centers:

Principal Investigator: Dr. Andrew M. Koke, SAC PASS Coordinator   akoke@
Assistant Investigators: Kristyn Sylvia, SAC PASS Assistant   ksvylvia@
                    Dr. Molly Burke, SAC Coordinator   moburke@
                    Dr. Anthony Guest-Scott, SAC Coordinator   aguestsc@
                    Dr. Elizabeth Housworth, Chair, Mathematics   ehouswor@
                    Dr. Leslie Robinson, Director, ASC   ljrobins@
Student Investigators: Gabriel Ancil (Sociology)   gsancil@
                     Ellen Brennan (Economics)   ellbrenn@
                     Evelyn Delph (Finance)   evdelph@
                     Joseph Freeman (Finance)   freemajm@
                     Benjamin Hogenkamp (Economics)   behogenk@
                     Alexander Rangazas (Economics)   azrangaz@
                     Jait Shukla (Finance)   jtsnshukla@
                     Minglin Zhao (Economics)   zhaoming@

Proposal for the Scholarship of Teaching and Learning Grant
Funding Level Requested: Phase II ($5000)
Second Year of Study

Duration of Funding Period: 1 year
Project to be conducted in spring and fall semesters, 2017
1 January 2017 – 31 December 2017
Abstract

With DFW rates around or over 30% most semesters, Finite Mathematics is a course many students on the Indiana University Bloomington Campus struggle with when first encountered. IUB offers numerous academic support programs—including tutoring sessions at the Math Learning Center, the Academic Support Centers, many of the cultural centers, and in the PASS embedded tutoring program beginning in Spring, 2017. We propose to systematically study impact of this assistance. Our project will examine students taking the two-semester version of finite on the IU Bloomington campus (MATH-D116 and MATH-D117). We will monitor, track, and compare student support services for this sequence to determine who is using them and how much positive impact they are having on student learning. Further, we will examine the monetary costs of these various programs to determine scalability of these various interventions. We will use the results of our study to develop a road map for improving student success in finite mathematics at IUB, with the goal of improving student retention and on-time graduation rates.
Project Description

The Shock of Finite Mathematics: A Recognized Problem on the IUB Campus

It is well known that IUB finite mathematics courses are difficult and a significant departure from the mathematics material with which many new university students are acquainted, leading to a high DWF rate as students drop out one semester in order to retake the course during a subsequent semester. What is less well known is how ethnicity impacts success in these courses.

There are several versions of finite mathematics on the IUB campus. MATH-M118 is the standard finite class, generally reserved for students who score above a 50 (out of 100) on the ALEKS math placement exam. This course has the highest enrollment at IUB, with 6,378 students registered for the course in Fall 2015 and Spring 2016, a typical enrollment for the course. This course is also one of the most difficult freshmen-level courses on campus. Of those enrolled, 1,901 students (29.8%) earned a D, F, or W grade. Only 559 students (9.2%) self-identified as Black or Latino students.

A two-semester version of finite is also available: MATH-D116 and MATH-D117, generally reserved for students scoring between 35-50 on ALEKS. The students who enroll in these two courses are less prepared for finite mathematics and therefore the course material is split between two semesters. Further, the classes are smaller. Nevertheless, the grade distribution is similarly poor. In Fall 2015 and Spring 2016 1,051 students enrolled in these courses, a typical enrollment figure. Of those enrolled, 344 students (32.7%) earned a D, F, or W grade.

From the chart above it is clear that improvements in the success and retention of Black and Latino students should be made, and thus a study of MATH-D116 and MATH-D117 is critical.

These results, however, cannot be traced to a lack of assistance—IUB has invested a great deal of time, personnel, and money in supporting all students in finite mathematics. In Fall 2015 and Spring 2016 alone, students had access to a myriad of resources for finite mathematics help, including:

1. The College of Arts and Sciences and the Department of Mathematics provided the Math Learning Center (MLC) in Swain East 340, open from 9am to 4pm, Monday through Friday for tutoring.
2. Further, the MLC offered special guided help sessions from 4pm to 6pm, Monday through Thursday.
3. OVPDEMA provided drop-in finite mathematics tutoring in the Academic Support Centers (ASC) located in Briscoe, Forest, and Teter Quads, 7pm to 11pm, Sunday through Thursday.
4. Additionally, OVPDEMA organized certain culture centers and related units on campus such as La Casa, Neal-Marshall Black Culture Center, First Nations Educational and Cultural Center, Asian Culture Center, the 21st Century Scholars program, and the Groups Scholars Program to offer specified finite tutoring hours.

---

1 Source: IUB Registrar Grade Distribution Database
2 Source: OVPUE Data Center
5. OVPUE’s Student Academic Center (SAC) coordinated two-credit companion courses for finite, EDUC-X101, which enrolled over 100 students across the two semesters.

6. Private tutoring was available, and the Math Department provided an online list of vetted, graduate students available for finite tutoring.

7. Additionally, the market for finite tutoring is such that a number of businesses offering tutoring were available, including Bloomington Tutors, Campus Tutoring Service, and BTown Tutors. IUB is unable to vet these businesses.

In short, students had free drop-in tutoring from Sunday evening to Friday afternoon, every week, for a total of more than 73 hours per week. At these locations, multiple tutors were on staff. Students had, and continue to have, a number of well-known finite support resources at multiple times and locations that were advertised in class and syllabus, encouraged by advisors, and disseminated on flyers to students and parents alike.

This support programming constitutes a considerable outlay of time, effort and expense, and yet the DFW rates illustrated above suggest areas for improvement in our programming. We propose studying the different support structures in a comprehensive way in order to determine which methods work the best for different students. This may give insights into where the University could be more efficient. Furthermore, it will allow us to advertise the effectiveness of the different support options which should lower the DWF rate by improving grades and encouraging students to utilize varied, effective, and proven support options.

Purpose of the Investigation with Specific Research Objectives
Our investigation will be a multimodal study of finite mathematics support and student usage for students enrolled in MATH-D116 and MATH-D117 beginning Spring 2017 and concluding Fall 2017. In total, two semesters will be studied with an anticipated enrollment of more than 1000 students. This study will be coordinated among several academic units on campus: the Department of Mathematics (College of Arts and Sciences), the Academic Support Centers and cultural center tutoring (OVPDEMA), and the Student Academic Center (OVPUE). Having a cooperative goal of determining the best means of supporting these difficult classes, key personnel from these units will be sharing data and results of the study.

The overall purpose of this study is two-fold. We aim to 1) determine the best means of supporting finite mathematics courses on our campus by learning how all of our students are utilizing (or not) said support; and 2) examining reception of these services among different student groups. Particular attention will be paid throughout, in alignment with previous research findings and IUB Bicentennial Objective One, on the impact of these services on the retention and success of under-represented and first-generation students.

1a. The first research objective is to track student usage of IUB finite mathematics support. We will collect attendance data for all IUB support services over the two semesters, tracking individual student usage. This data will reveal which tutoring options students choose, when students choose to attend tutoring (i.e., early in the semester, or just before an exam, after particularly poor grades, etc.) and with what frequency. Such a study will help IUB support services analyze patterns of usage which will in turn assist with personnel staffing. All students enrolled in MATH-D116 and MATH-D117 will be tracked.

1b. The second research objective is to track what groups of students prefer to utilize these various finite support programs. The OVPUE data center will provide demographic data on the students enrolled in the two finite courses, including current IUB GPA, self-identified ethnicity and gender, major, high school GPA, and SAT scores. It is unclear how many students who are doing poorly choose to utilize tutoring resources, or if these students access such resources in a timely manner. This information will help us determine how our current resources are being used and how we might encourage usage among certain student populations.
1c. The College of Arts and Sciences will add the PASS embedded tutoring programming into all MATH-D116 and MATH-D117 sections during Spring and Fall 2017. The third objective is to examine the impact of this new program. IUB has not attempted a formal, embedded peer tutoring program in these classes before. It is hypothesized that the students will respond strongly to the program and that this intervention will increase student access to support, improve student success, and lower DFW rates, based on our previous data regarding the PASS program.

1d. The fourth objective is to track the amount of tutoring hours, student attendance, and cost of tutoring. This will allow us to perform a cost-benefit analysis of the various tutoring programs, locations, and times, which could assist in helping our programs stretch their impact per dollar spent.

2. The fifth research objective is to determine student decision making in regards to finite support (e.g., why do students choose one support service over another, and what factors into such decisions?). Our study will use a Qualtrics online survey tool to inquire with all students enrolled in the two finite classes. We will ask the students about which services they are aware of, their opinion of these services, what they have heard about these services, why they do/do not utilize such resources, and usage of paid tutoring services. This information will help us to evaluate current programming and outreach opportunities.

Previous Research Results
In 2015 the SAC was awarded a SoTL Phase II Grant to study its Peer Assisted Study Session (PASS) embedded tutoring program (The Effectiveness, Efficiency, and Experience Offered by the PASS Student Led Team Learning Program: Biology and Beyond). In PASS, selected students are recruited to lead study sessions in difficult, required classes. These PASS leaders must have previously taken the class on this campus and must have passed the course with a 3.0 or better. PASS leaders attend the class again, work as an assistant to the instructor, and lead two study sessions per week covering the most difficult content from the course.

As a result of the research on the PASS program, we discovered that our embedded tutoring program has high impact on the two courses we studied: ECON-E201 and BIOL-L112. Overall we found that students who attended PASS sessions weekly improved their test scores throughout the semester by over 6%, while those that did not reduced their test scores by more than 5% in the same timeframe. We statistically verified these results and found that PASS was a significant improvement to student success in these difficult courses. We also learned that students utilized the PASS program at a very high rate, with an average of 30% of a class attending the weekly study sessions.

With such impressive results, the SAC partnered with the Groups program in Summer 2016 and implemented PASS in MATH-J111, MATH-J113, and CHEM-C103. Data is currently being examined regarding the impact of the programming, and initial student responses were overwhelmingly positive. Further, the College of Arts and Sciences elected to implement PASS in a number of courses in an effort to increase student success in high-DFW courses. To that end, PASS will be implemented in Spring 2017 not only in MATH-D116 and MATH-D117, but also in CHEM-C117, BIOL-L211, ECON-E201, and ECON-E202.

The expansion of the PASS program is in no small part due to the data collection and analysis we were able to achieve because of the first SoTL Grant received in 2015. We now seek to expand this initial study. The first year of study asked if PASS made a difference in student test performance; we found that it did. We now will study how PASS and other finite support can impact student success in what is a difficult hurdle on the IUB campus, particularly among historically underrepresented students. We hope that our research will justify expanding PASS to other high-DFW courses in the near future.

Current research on tutoring has shown two significant trends in regards to math support. First, timing matters. Most students only attend tutoring just prior to exams, where it has the least payoff (Hodges, 2001). However,
weekly, repeated visits have the highest impact (Rheinheimer and Mann, 2000; Cooper, 2000). Our research project will help us examine how often our students are choosing to use finite tutoring, and our project will also examine if an embedded program such as PASS, which meets weekly, helps overcome tendency to only use tutoring just prior to exams.

Second, ethnicity matters. Most students who engage in math tutoring are disproportionately white and female (Ticknor, et al, 2014). Our research will help us see precisely who is utilizing tutoring services, whether IUB follows the above trend, and whether the services in the cultural centers and PASS are helping broaden access to tutoring services for historically underrepresented students.

It should be noted that our campus has an opportunity to make a unique contribution to the student support literature with this project. Most campuses have tutoring centers and locations for drop-in math tutoring work. However, our campus also has a successful embedded tutoring program. Little research has been done comparing these two models, and we hope to be able to contribute our findings nationally.

**Significance of Study upon Undergraduate Teaching and Learning**

IUB has yet to undertake a comprehensive, campus-wide study of finite academic support despite the large enrollment and difficulty of the courses. This study is of paramount importance and will have a large impact on undergraduate education. Prior to this study, IUB administration has sought to increase the amount of tutoring locations and hours, hoping that this will eventually lead students to utilize the resources perform successfully. However, our preliminary examinations indicate that some services are more heavily valued and used than others, and that some are relatively unknown; the timing of support impacts student usage; many tutors report lack of student usage; and it remains unclear how much impact our tutoring has on the students who are in desperate need of such interventions. In other words, we do not know if the time, personnel, and money are being used in the best means possible. This study will inform student support administration helping streamline our offerings, our outreach, and guarantee the broadest and most significant impact, including among historically underrepresented students.

**Outcomes from the Project Contributing to IUB Assessment of Student Learning**

This project will contribute to the broader assessment of IUB student learning in three principal areas. First, we will determine how campus finite support services are being used by undergraduates in D116-117. Second, we will determine how these undergraduates evaluate such services via the survey. And third, we will examine to what extent our support efforts are effective and improving student success for these students. Our broad support for finite mathematics is one co-curricular practice that will lead to deeper learning, as called for in the Strategic Plan for our campus.

**Research Methodology, Including Data Collection and Analysis**

All participants including undergraduate research assistants will complete IRB certification in January 2017.

This project will coordinate several data sets. From the OVPUE Data Center we will receive demographic data of all students in MATH-D116 and MATH-D117. This information will be paired with two other data sets: student performance in the two classes available via Canvas, and their attendance at any of the finite support services available on campus. These data sets will be combined to create a large, comprehensive set that allows us to see who the students are, how they are doing in class, what services (if any) are being used, when services are used during the semester, and with what frequency. Tied to individual test grades (each class has four tests per semester), we will be able to see the impact of finite support over the course of the semester and across the multiple tests.

This project will also include an extensive Qualtrics survey of all enrolled students. This survey will be distributed online and students will be encouraged to participate, however, the survey will be anonymous. This survey will allow us to determine how IUB finite support services are regarded and how students decide which
services to use and when. Research from this Qualtrics survey will be presented by our undergraduate researchers at the Hutton Honors Symposium in April 2017.

Means by Which Success of the Project Will Be Measured
This project will have several measures indicating success. First, we predict that we will see an upturn in course grades throughout the semester among students who attend multiple support opportunities, a result that will be consistent with the literature. A second measure of success will be our undergraduate poster session for the Hutton Honors Symposium. This will be a significant accomplishment since undergraduate research and sharing of research is a major goal of the university, and no data currently exists examining student motivation for finite support on our campus. Third, as there is little data on the success of embedded tutoring options for math tutoring versus traditional drop-in tutoring options, this project will be successful when the results of the study are presented at either a SoTL conference (such as ISSOTL 2017) or a student support conference (such as a Supplemental Instruction conference). Finally, Dr. Charles R. Frederick, Jr., Director of the SAC, will evaluate the project at the end of each semester focusing on timely completion of research goals.

Manner in Which the Results Will Be Disseminated
Results will be disseminated in multiple forms and to multiple parties.

1. In support of Bicentennial Objective One and the promotion of undergraduate research, the IUB Hutton Honors College Research Symposium (April 2017) will provide a campus opportunity for our undergraduate researchers and will function as an early, preliminary analysis of our data and generation of a useful poster session. The goal of this session will be to show the results of our first Qualtrics survey regarding student usage and opinion of finite support on the IUB campus. Additionally, the IUPUI National Mentoring Conference (October 2017) will provide a formal, local conference experience for our undergraduate researchers, allowing them to provide an interactive session at a national conference.

2. The project staff will attend one conference focused on student support, ideally the 2017 International Conference on Supplemental Instruction (May 2017), or perhaps ISSOTL 2017 if it is in North America, NASPA 2017, or the National Symposium on Student Retention. The project staff will present data indicating the impact in DFW rates from implementing embedded tutoring programs and a further presentation on student self-selection finite support, allowing our research to be disseminated beyond the IUB community.

3. The results will be provided in a detailed report to Dean Larry Singell (College of Arts and Sciences), Vice Provost Martin McCrory (OVPDEMA), and Vice Provost Dennis Groth (OVPUUE). This report will include cost-benefit analysis of the various tutoring options on campus plus recommendations for further outreach and coordination.

4. The project staff will welcome the opportunity to present at a campus SoTL event, via either a poster session or presentation.

5. We are considering a publication, particularly comparing the efficacy and response to an embedded tutoring program versus the more traditional drop-in tutoring model. Possible publications include submission to journals such as *Mentoring and Tutoring: Partnerships in Learning*, *Journal of Peer Learning*, or *Tutors: A Multiliteracy Journal*.

Reflective Teaching Practices
The project is intended to inform the various finite support programs of student preference and thinking in order to advance our understanding. Our aspiration is that we will be able to use this data to adjust our programming so that it matches student needs, availability, and expectations. Further, we hope to adjust our outreach such that student response increases. We believe we will find that some of our spending in student support is not as efficient as it could be, providing us the opportunity to focus our support programs more specifically for greater benefit. Overall, we expect that this project will help us reduce DFW rates in MATH-D116 and MATH-D117, thus improving student learning, retention, graduation, and success. Finally, the research that emerges from this important study has the potential to inform support services for hundreds of departments, programs, and courses across all of Indiana University’s campuses.
Budget Narrative

Phase II funding is $5,000. The budget for this project is slightly over the funding amount. These funds will be used to pay undergraduate and graduate investigators as well as fund two conferences. The Student Academic Center will contribute all funds above the grant limit.

1. Dr. Andrew M. Koke is Principal Investigator and will manage all parts of the grant and the project. Time commitment is estimated to be 3 hours per week. This time is donated to the project and is of no cost to the grant.

2. Kristyn Sylvia, SAC PASS Graduate Assistant, will be tasked above and beyond her normal role of training and supervising leaders in the PASS program. Her research contribution is estimated to be 1 hour per week, at $25 per hour, for 34 weeks (17 weeks for Spring 2017 and 17 weeks for Fall 2017). Total cost to the grant: $850.

3. Dr. Molly Burke and Dr. Anthony Guest-Scott will assist the grant as needed, serve as advisors to the project, and will assist in creation of the Qualtrics survey. Their time commitment is estimated at 1 hour per week and is donated to the grant.

4. Dr. Elizabeth Housworth and Dr. Leslie Robinson will serve as advisors to the grant. They will coordinate the data from their respective tutoring centers, including collecting the data, organizing the data, and forwarding it to the analytics team. Their time commitment is estimated at 1 hour per week and is donated to the grant.

5. The undergraduate investigator hours are estimated to be 1 hour per week, per investigator. These investigators will collect the data, organize it into a suitable format for use in statistical operations, run the analysis, extrapolate results, create a poster session with said results, code the Qualtrics data, and prepare a presentation. Seven undergraduates will work on this project. Each will receive $11 per hour for work on the project, at one hour per week, 17 weeks per semester, for two semesters. Total cost to the grant: $2618.

6. The IUPUI National Mentoring Symposium is in October 2017. Undergraduate investigators will present at this one-day conference. The grant will cover the cost of the conference for nine individuals (Dr. Andrew M. Koke, Kristyn Sylvia, and seven undergraduate investigators at $50 per person) and the cost of travel to the conference ($25 per person on the IUB bus to the event). Total cost to the grant: $675.

7. One additional conference, attended by Dr. Andrew M. Koke and Kristyn Sylvia. The conference chosen will depend on geographic proximity, but top preferences are for the International Conference on Supplemental Instruction or the International Society for the Scholarship of Teaching and Learning. Anticipated cost, per person, is $500 for flight, $300 for hotel, and $300 per diem. Total cost to the grant: $2200.

8. Qualtrics software, Tableau software, and Stata statistical analysis software are available to the SAC via the IUB and OVPUE license, and therefore at no cost to the grant.

<table>
<thead>
<tr>
<th>Budget Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAC PASS Graduate Assistant Funding</td>
<td>$850</td>
</tr>
<tr>
<td>Undergraduate Investigator Funding</td>
<td>$2618</td>
</tr>
<tr>
<td>IUPUI National Mentoring Symposium</td>
<td>$675</td>
</tr>
<tr>
<td>Other National Conference Funding</td>
<td>$2200</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$6343</strong></td>
</tr>
</tbody>
</table>
## Research Plan and Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Activities</th>
</tr>
</thead>
</table>
| January 2017   | • All participants will complete IRB and training certification by 31 January.  
                  • OVPUE Data Center will prepare a data set of all students enrolled in MATH-D116 and MATH-D117 for Spring 2017. This is the primary data set.  
                  • All participant tutoring locations will begin collecting attendance information and forwarding this to analytical team on monthly basis.  
                  • Andrew M. Koke will apply to present at a national conference tbd. |
| February 2017  | • Analytical team will create a Qualtrics survey that queries students regarding knowledge about particular finite support options as well as preferences.  
                  • Undergraduate investigators will apply to present at the Hutton Honors Conference.  
                  • First of four tests completed in MATH-D116 and MATH-D117. Data from test will be forwarded to analytical team and added to primary data set.  
                  • Attendance data at all finite support units also added to primary data set.  
                  • Qualtrics survey sent to students. |
| March 2017     | • Second of four tests completed in courses, and added to primary data set.  
                  • Analytical team will begin analyzing results of tests and comparing to individual usage of finite support including type of support and frequency.  
                  • Qualtrics survey coded and analyzed. |
| April 2017     | • Poster session created for Hutton Honors Symposium. Poster will focus on results of Qualtrics survey.  
                  • Third of four tests completed in courses. Results added to primary data set. |
| May 2017       | • Final of four tests completed in courses. Results added to primary data set. |
| Summer 2017    | • Qualtrics survey analyzed and adjusted as needed for fall semester. |
| August 2017    | • Undergraduate investigators will apply to the IUPUI National Mentoring Symposium. |
| Fall 2017      | • As above. We will collect data again from student support services and also from tests in Fall 2017 MATH-D116 and MATH-D117. |
| October 2017   | • Undergraduate investigators present at the IUPUI National Mentoring Symposium.  
                  • Prepare new SoTL Grant request, as needed. |
| November 2017  | • Prepare final report for College of Arts and Sciences, OVPUE, OVPDEMA, and CITL. |
| December 2017  | • Deliver final report to above.  
                  • Begin work on possible publication. |
I am writing in strong support of the proposal authored by D. Andrew Koke as submitted to SoTL for funding consideration.

Last year Dr. Koke and team were awarded funding to study, the PASS program which was in its infancy. The results of that study proved positive and spurred interest in extending the PASS program into several courses in variety of disciplines in the College.

This proposal is aimed at measuring the impact of PASS in Math D116 and Math D117, the 2 semester version of finite mathematics. Dr. Elizabeth Housworth, Chair at the Mathematics Department (College of Arts and Sciences) and Dr. Leslie Robinson, Director of the Academic Support Center (OVPDEMA) have agreed to partner this research effort.

The proposal speaks directly to The Strategic Plan for IU-B and its stated goals to improve retention and provide more support in the STEM disciplines.

I hope your committee sees fit to fund this worthy proposal.

Sincerely,

[Signature]

Charles R. Frederick Jr., Ph.D.
Director
Student Academic Center
October 27, 2016

Center for Innovative Teaching and Learning
Scholarship of Teaching and Learning Grant Committee
Herman B Wells Library
Bloomington, IN 47405

Dear Members of the Selection Committee,

I write in enthusiastic support of Dr. Andrew Koke’s application for a Scholarship of Teaching and Learning grant proposal entitled: An Ongoing Study Determining the Best Support Programming for Students in Need, Part II: Solving the Finite Mathematics Quandary. This project represents a collaborative effort between the College of Arts and Sciences, the Department of Mathematics, OVPDEMA, the Academic Support Centers, the OVPUE and the Student Academic Center. Our involvement in and support of this project reflects the commitment of the College of Arts and Sciences as well as the Department of Mathematics to student retention and success.

The College of Arts and Sciences recognizes that students struggle with finite mathematics for many different reasons and that often the Math Modelling requirement represents a significant hurdle that students must overcome in order to complete their undergraduate degrees. In recognition of this fact, the College has supported finite mathematics courses for years with a tutoring program organized through the Math Learning Center and, most recently, by developing a peer-led team-learning program, Peer Assisted Study Sessions (PASS), for MATH-D116 and MATH-D117, (to be implemented in Spring 2017). We also endorse support options offered through other units on campus, such as the Student Academic Center. The College is also aware, however, that until now a systematic study of how students utilize, or choose not to utilize, support services for finite mathematics has not been possible due to a lack of shared information. Dr. Koke’s current grant proposal will bring together the three major units offering support for finite mathematics at IUB in a conversation that will shed light on the most effective ways in which the University can support student success in finite mathematics with the most cost effective utilization of resources. The goal of collaborating on the gathering and analysis of data is to improve our current support programming for finite mathematics an effort to increase student success, retention, and on-time graduation.

The Bicentennial Strategic Plan for the Bloomington campus calls for “curricular and co-curricular programming [...] that integrates outstanding campus resources.” This grant proposal by Dr. Koke grant is precisely the kind of endeavor that promises to engage multiple units across campus in an effort to support undergraduate student success and on-time graduation. In short, this grant aligns well with Provost Robel’s strategic academic goals, while also engaging one of the most significant questions on our campus: How can we most effectively support the learning and academic success of our students? It is my hope that the Selection Committee will support the collaborative project outlined in Dr. Koke’s proposal, which I believe will have important consequences for undergraduate students in every unit at IUB.

Please do not hesitate to contact me should you have questions in this regard or if I can provide any additional information.

Sincerely,

[Signature]

Terri A. Greenslade, Ph.D.
Assistant Academic Dean and Director of Undergraduate Retention and Achievement

Owen Hall   790 E. Kirkwood Avenue   Bloomington, IN 47405-7104   (812) 855-1646   fax (812) 855-2060
I am writing this letter in support of a proposed study to track progress, learning strategies and outcomes for students enrolled in the two-semester D116 and D117 finite courses, with a particular interest in utilization of various support services on campus. For many students, particularly historically underrepresented minority and first generation college students, finite math can present significant challenges during their undergraduate career. In fact, many of these students take the two-semester version of finite as an initial means of handling this issue. Moreover, there are numerous academic support options for finite math in particular, including the Peer Assisted Study Program (PASS), the Math Learning Center (MLC), the Academic Support Center (ASC) in the residence halls and satellite locations, and other program-based tutoring for specific populations. By examining how and why students use these help sources, we can target our efforts more effectively and increase student learning. This collaborative project would bring together researchers and practitioners from across IUB, including staff and faculty from the Student Academic Center, the Academic Support Center and the mathematics department, thereby creating a Community of Inquiry that will allow for a more meaningful interdisciplinary conversation about how we teach and support finite mathematics learning on our campus.

Sincerely,

Martin A. McCrory
Vice Provost for Educational Inclusion and Diversity and Chief Diversity Officer, Indiana University, Bloomington
Associate Vice President, Academic Support and Diversity
Office of the Vice President for Diversity, Equity, and Multicultural Affairs
ANDREW M. K OKE
918 W 13TH CT • BLOOMINGTON, IN 47404
(217) 899-1859 • AKOKE@INDIANA.EDU

Education

Ph. D., Indiana University (2013)
MA, Lincoln Christian University (1998)
BA, Lincoln Christian University (1995)

Positions Held

Basic Academic Skills Coordinator, PASS Coordinator, Student Academic Center, Indiana University (2014 to present).

- Improve and manage course curriculum for mathematics and accounting help courses. Hire and train all graduate instructors (staff of 3).
- Manage the Supplemental Instruction program at IUB (called Peer Assisted Study Sessions, or PASS). Hire and train all undergraduate tutors (staff of 60). Hire and train all graduate assistants (staff of 10) Collect and publish data. Increase offerings at the university based on DFW results.
- Create and manage academic probation course that features one-on-one undergraduate peer coaching. Hire and train all undergraduate coaches (staff of 12). Hire and train all graduate instructors (staff of 2).
- Provide academic coaching on an appointment basis. Work with concerned parents of struggling students.
- Serve as instructor for courses as needed.

Academic Advisor, College of Arts and Sciences, Indiana University (2013-2014)

Graduate and Adjunct Instructor, Indiana University (2005 - present)

Tutor, Writing Tutorial Services, Indiana University (2010-2013)

Publications


Grants

“The Effectiveness, Efficiency, and Experience Offered by the PASS Student Led Team Learning Program: Biology and Beyond.” (Indiana University Phase II Scholarship of Teaching and Learning Grant from the Office of the Vice Provost for Undergraduate Education, $5000). 2016. Primary Investigator.

“The Impact of the ‘Becoming the Best Student’ and ‘You@IU’ Courses on Retention, Graduation, GPA, and Student Lives More Generally.” (Indiana University Learning Analytics Research Grant from the Office of the Vice Provost for Undergraduate Education and Center for Innovative Teaching and Learning, $2000). 2015.


---

**Courses (Instructor of Record)**

Department of History, College of Arts and Sciences  
HIST-H105: American Civilization to 1860  
HIST-W300: The History of Hell in the West  
HIST-B302: Witches and Heretics  
EDUC-X152: Learning Skills for Accounting

Student Academic Center, School of Education  
EDUC-X158: The Culture of College – Recovering from Academic Probation  
EDUC-X152: Right Start – Transitioning to College

Global Village, College of Arts and Sciences  
COLL-G220: A History of the Afterlife

GROUPS Project, School of Education  
EDUC X153: Critical Reading and Reasoning for the New College Student

---

**Courses and Programs Coordinated**

EDUC X152: Learning Skills for Accounting  
EDUC X101: Learning Skills for Finite Mathematics  
EDUC X156: College and Lifelong Learning Peer Coaching Class  
PASS (Peer Assisted Study Sessions) Supplemental Instruction Program  
COLL R200: Success and the College (probation recovery course)

---

**Undergraduate Research Supervised**

*The Impact of Peer Assisted Study Sessions (PASS) on Student Grades in ECON-E201,* for the Hutton Honor College Symposium, Indiana University, April 2016.

*Peer Leadership and Research: Integrating Undergraduate Research with Peer Programming,* for the IUPUI National Mentoring Symposium, October 2016

---

**Selected Presentations**


Andrew M. Koke

Recent Service to Community and University

“Touch and Go: Beyond Audio-Visual Pedagogical Techniques in the History Classroom” at the 11th Annual Conference on Teaching and Learning in History, Oxford, UK.

“Becoming the Episcopal Church: How Distance and Empire Changed the Church of England in the American Colonies” for Trinity Episcopal Church.


Indiana University Football NCAA Academic Orientation Series.


Membership


American Historical Association
International Society for the Scholarship of Teaching and Learning in History
Certified Supplemental Instruction Coordinator
References

Dr. Charles “Chip” Frederick, Jr.
Director, Student Academic Center
408 N. Union, Suite 300
Bloomington, IN 47405
(812) 855-7313
crfreder@indiana.edu

Dean Terri Greenslade
Academic Assistant Dean for Retention and Outreach
College of Arts and Sciences
Owen Hall
790 E Kirkwood Ave
Bloomington IN 47405
(812) 855-8245
tgreensl@iu.edu

Jo Ann Vogt
Director, Writing Tutorial Services
Center for Innovative Teaching and Learning
Wells Library Learning Commons
1320 E Tenth St
Bloomington, IN 47405
(812) 855-4928
javogt@indiana.edu

Professor David Pace
Emeritus
Department of History
Ballantine Hall 742
Indiana University
Bloomington, IN 47405-7103
dpace@indiana.edu
EDUCATION

2013-Present PhD Candidate, Evolution, Ecology & Behavior Program
Indiana University, Bloomington, IN
Advisor: Gregory Demas, Anticipated Graduation: May 2018

2007-2011 Bachelor of Science, Biology (Minor in Health Care Administration)
Stonehill College, Easton MA

RESEARCH EXPERIENCE

2013 – Present Indiana University Graduate Student
Bloomington, IN, Advisor: Dr. Gregory Demas

2010 –2011 Harvard Medical School and VA Boston Healthcare System
Behavioral Neuroscience Researcher
Brockton, MA, Advisors: Dr. Youngsoo Kim and Dr. Robert Strecker

2010 Stonehill Undergraduate Research Experience (S.U.R.E.) Scholar
Easton, MA, Advisors: Dr. Youngsoo Kim and Dr. Robert Strecker

2009 Veroscience, LLC Laboratory Assistant
Tiverton, RI, Advisors: Dr. Michael Ezrokhi and Dr. Shuqin Luo

OUTREACH, SERVICE, AND MENTORING

   I serve as the Graduate Student Representative for the Undergraduate Animal Behavior Major Curriculum Committee at IU, in which I collect and analyze data from students enrolled in the Animal Behavior core course across multiple semesters, I address curricular issues that arise, and I meet with faculty to determine possible changes to the curriculum.

2. Innovations in Pedagogy (2014 – Present)
   I was a member of the IU Center for Innovative Teaching and Learning (CITL) Graduate Student Learning Community (GSCL) in 2014, where I completed a Scholarship of Teaching and Learning (SOTL) project studying scientific writing in an upper level animal behavior course at IU. I shared my experiences from this project with the incoming graduate students at the CITL Teaching Orientation for new Associate Instructors (AIs).

3. Middle School, High School, and Undergraduate Mentoring (2014 – Present)
   Middle School Students: I was a mentor for the Girl's Incorporated and the WonderLab Children’s Museum Life Sciences Camp on the Farm, at Marble Hill Farm, in Bloomington, IN. High School Students: Through the IU Jim Holland Summer Science Research Program, I mentored high school
student, Lizbeth Funkhouser, a Bloomington South High School student, in a weeklong research experience, which resulted in a public poster presentation. **Undergraduate Students:** I was the scientific mentor for IU undergraduate, Emma St. John, for the IU Hutton Honors College Summer Research Program. I have mentored 14 undergraduate students in the Demas Lab, with some students taking part in the IU Hutton Honors College and the IU Cox Scholars Program.

   I volunteered with a group of undergraduate students in Ms. Elizabeth Robb’s 6th grade class at Childs Elementary School, in Bloomington, IN. I was a volunteer judge for both the Brown County High School Science Fair, in Nashville, IN, and the South Central Indiana Science Fair, at Ivy Tech Community College, in Bloomington, IN.

5. **Promotion of Integrative Research (2013 – Present)**
   I am a member of IU’s Center for the Integrative Study of Animal Behavior (CISAB). I have served as a graduate student mentor for the NSF Research Experience for Undergraduate (REU) Program in Animal Behavior at IU, where I mentored Patricia Baez Ramos, an undergraduate from the University of Puerto Rico. I have also served on the poster judging and promotions committees for CISAB’s annual Animal Behavior Conference (ABC), and I have served as the conference’s Poster Committee chair for 3 years.

### TEACHING EXPERIENCE

<table>
<thead>
<tr>
<th>Year</th>
<th>Position</th>
<th>Course/Instructor</th>
</tr>
</thead>
</table>
| 2015 – Present | **Graduate Assistant Program Coordinator** | Peer Assisted Study Sessions (PASS) Program  
Indiana University’s Student Academic Center (SAC), Bloomington, IN |
| 2013 – Present | **Associate Instructor, Indiana University** | Research and Professional Ethics (A502), Dr. Ellen Ketterson  
Biological Science for Elementary Teachers (Q201), Dr. Pamela Hanratty  
Integrative Human Physiology (P451), Dr. Whitney Schlegel  
Animal Behavior (Z460), Dr. Emily Chester |
| 2008-2011  | **Undergraduate Teaching Assistant, Stonehill College, Easton, MA** | Biological Principles I (BIO 101), Dr. Maura Tyrrell  
General Chemistry I (CHM 113), Dr. Maria Curtin |

### SELECTED FELLOWSHIPS, SCHOLARSHIPS, GRANTS, AND HONORS

<table>
<thead>
<tr>
<th>Year</th>
<th>Fellowship/Grant</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>Louise Constable Hoover Fellowship</td>
</tr>
<tr>
<td>2016</td>
<td>National Institute of Health (NIH) Common Themes in Reproductive Diversity (CTRD) TrainingGrant</td>
</tr>
<tr>
<td>2016</td>
<td>Indiana University (IU) Phase II Scholarship of Teaching and Learning Grant from the Office of the Vice Provost for Undergraduate Education. <em>The Effectiveness, Efficiency, and Experience Offered by the PASS Student Led Team Learning Program: Biology and Beyond.</em></td>
</tr>
<tr>
<td>2015</td>
<td>Honorable Mention, National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP). <em>Effects of Early Postnatal Immune Challenge on Reproductive Development and Behavior.</em></td>
</tr>
</tbody>
</table>
2014 Sigma Xi Grant-in-Aid of Research. *Effects of Early Postnatal Immune Challenge on Reproductive Development and Behavior.*

2013 Indiana University Biology Departmental Research Recruitment Fellowship

---

**SELECTED PUBLICATIONS** (*mentored undergraduate students*)


Sylvia, K. E. The courage to try something new: What collaborative learning has brought to my classroom and me. (Chapter). *Voices from the Classroom: Graduate Students’ Reflections of Evidence-based Teaching*. Robinson, J. M., Kearns, K. D., Plummer, L., and O’Loughlin, V. D. (Eds.) (in revision).


---

**SELECTED PRESENTATIONS** (*mentored undergraduate students*)


EDUCATION
Rutgers University, New Brunswick, New Jersey
Master of Arts and Doctor of Philosophy, Comparative Literature 2003; 2006

Haverford College, Haverford, Pennsylvania
Bachelor of Arts, Comparative Literature 1999

WORK EXPERIENCE
Coordinator of Retention Services 2007-present
Student Academic Center, Indiana University Bloomington, Bloomington, Indiana
- Direct Phoenix Program for students on Academic Probation along with director of academic advising
  - Coordinate research on retention with institutional research office and help to set effective retention policy
  - Design and implement curriculum for Educ-X158, The Culture of College, 3-credit class required for students on Academic Probation, serving over 600 students per year
  - Assess need for and create new programming, including Educ-X157, Continuing the Phoenix Program Success Seminar, 1-credit small group academic support class
  - Train academic advisors in supporting students facing academic difficulty
  - Use IU early alert and advising software to track student progress and assess need for intervention
- Coordinate other classes as needed, including Educ-X152: The Right Start, a first year seminar introducing students to the university environment and various resources at IUB & Educ-X153: Critical Reading and Reasoning for students in summer bridge program
- Hire, train and supervise approximately 30 graduate instructors and undergraduate peer mentors
- Teach Educ-L490, internship class for undergraduate peer mentors in training
- Construct budget to fund programming
- Perform outreach duties across campus as needed
- Serve on Reinstatement Committee to evaluate petitions for readmission

Postdoctoral Teaching Fellow 2006-2007
Tulane University, New Orleans, Louisiana
- Taught two English 101 classes introducing critical reading and analytical writing
- Designed service-learning project, proposed to community organizations and facilitated student arrangements

Tutor 2003-2007
Tulane University, New Orleans, Louisiana and Rutgers University, New Brunswick, New Jersey
- Assisted students with all aspects of the writing process, including basic reading and writing and ESL skills
- Mentored newly trained tutors
Teaching Assistant 2001-2006
Rutgers University, New Brunswick, New Jersey
- Taught introductory and advanced classes in Comparative Literature, English, and Women’s and Gender Studies

AWARDS AND PRESENTATIONS

“How to Speak to Students about Academic Difficulty.” Invited presentation for IU Bloomington’s University Division Academic Advisor Training. Bloomington, Indiana. September, 2014.


OTHER EXPERIENCES AND COMPETENCIES
Soprano
Bloomington Chamber Singers, Bloomington, Indiana 2007-present
Vox Feminae/Musica da Camera, New Orleans, Louisiana 2006-2007

Crisis Line Volunteer 2007-2010
Middle Way House Women’s Shelter, Bloomington, Indiana
- Fielded phone calls to crisis line; assessed need for shelter; referred to other resources
- Staffed shelter one night per week: welcomed new residents, oversaw shelter procedures and regulations

Commissioner-in-Charge 2006-2007
Ninth Ward, New Orleans, Louisiana
- Oversaw and filed paperwork documenting voting in precinct
- Set up and closed down poll as per state regulations
Support Group Facilitator 2003-2005
Women Helping Women, Metuchen, New Jersey

- Trained in “strengths perspective” approach to counseling building on clients’ past successes
- Facilitated several ten-week support groups with co-facilitator for 8-10 diverse women seeking to improve self-esteem and meet personal goals
- Mentored newly trained facilitators, consulted with supervisor, assessed women’s changes, formulated approaches to issues within group

COMPUTER SKILLS: Proficiency using Microsoft Office Suite, including Word, Excel, PowerPoint and Outlook; PeopleSoft-supported SIS and HRMS functions

LANGUAGE ABILITIES: Moderate proficiency in Spanish and French
Anthony Guest-Scott  
Curriculum Vitae

507 Birch St.  
Ellettsville, IN 47429  
812-353-7078 (cell/home)  
aguestsc@indiana.edu

EDUCATION

Ph.D., Folklore and Ethnomusicology, Minor: Anthropology, 2014  
Indiana University

M.A., Folklore and Ethnomusicology, 2006  
Indiana University

B.M., Music Composition, 2000 (Summa cum laude)  
Virginia Commonwealth University

AWARDS, DISTINCTIONS, AND FELLOWSHIPS

Carl Ziegler Outstanding Instructor Award, Collins Living-Learning Center, Fall 2009

Louise McNutt Dissertation Year Research Fellowship, IU College of Arts and Sciences,  
Academic Year 2008/2009

RESEARCH

“The Impact of ‘Becoming the Best Student’ and ‘You@IU’ Courses on Retention, Graduation, GPA, and Student Lives More Generally” Learning Analytics Fellows Program, Center for Innovative Teaching and Learning, Indiana University Bloomington  
2015-Present

- Leading a research project analyzing several key dimensions of impact for the two courses I coordinate and that are taught through the Student Academic Center at Indiana University-Bloomington: EDUC-X150: “Becoming the Best Student” and EDUC-X159: “You@IU.” Taken together, the goals of these two courses specifically target 1) student persistence, retention, and graduation; and 2) academic success in all courses, regardless of discipline or program of study. Nearly 7,500 IUB students combined have taken these two courses since 2004, creating a significant and relatively unexamined body of data with a story to tell. We are examining this data over a twelve-year period, spanning academic years 2004-2005 through 2015-2016, measuring the impact of both courses in terms of persistence, retention, and graduation rates. Analysis also includes responses to several open-ended questions included in end-of-term student evaluations for recent semesters. In doing so, we are striving to take the broadest possible view of the term “impact” for both courses by looking for connections between our quantitative data, what students think they are getting out of these classes, and what they feel are the most significant ideas and tools they are using to improve their lives as students and young adults.
“The Effectiveness, Efficiency, and Experience Offered by the PASS Student Led Team Learning Program: Biology and Beyond”, CITL Scholarship of Teaching and Learning Grants, Indiana University Bloomington 
2015-2016
• As part of a team of researchers led by Andrew M. Koke, examined the impact of the PASS (Peer Assisted Study Sessions) embedded tutoring program coordinated by the Student Academic Center at IUB. Analysis centered on improvements in course exam performance in the BIOL-L112 course as it related to PASS attendance and demographic data as well as comparative inquiry into numbers of students per dollar spent, corresponding decrease in DFW rates, and demographic usage data vs. standard drop-in tutoring.

“An Inquiry into Purpose and Motivation as Catalysts for Retention,” Learning Analytics Fellows Program, Center for Innovative Teaching and Learning, Indiana University Bloomington
2014-2015
• As part of a team of researchers that also includes Andrew M. Koke and led by principal investigator Molly Burke, investigated the efficacy of key curricular goals of a retention course required for University Division students placed on Academic Probation. This included a robust qualitative examination of the relationship between student motivation and the multivalent purposes of higher education and its impact on retention and grade point average metrics.

Ph.D. Dissertation: “Culture, Metaculture, and the Unfolding of Four ‘Arab’ And ‘Middle Eastern’ Music And Dance Learning Events in The United States”
2007-2011
• Multi-sited ethnographic exploration of how predominately white, middle class Americans make meaning through an extended engagement in annual “Middle Eastern” music and dance learning camps, retreats, and seminar events held in the United States. Expanding anthropologist Greg Urban’s metaculture concept, I explored how the ways in which participants in these events think about one another took shape according to the practice of their mutual construction at multiple levels of reflexivity: the teaching of specific songs, instrumental pieces, and dance techniques; communication about the most important elements of those forms; stereotypes about “American” and “Middle Eastern” cultures and ethnicities (and their representative expressive forms); and ideologies of culture, music, knowledge, and experience (and the interrelationship between them) more generally.

M.A. Thesis Project: “Categories in Motion: The Use of Generic Multiplicity in Music Store Guitar Lessons,” Published in article form in Ethnomusicology 52(3).
2003-2006
• Ethnographic study of a large guitar lesson program at a Midwest music store.
• Explore how multiple musical genres are used both by music store staff and instructors themselves to define instructor identity and evaluate pedagogy proficiency, as well as the ways in which instructors draw upon an array of musical genres to construct their individual lesson programs for students.

UNIVERSITY TEACHING AND ADMINISTRATIVE EXPERIENCE

Academic Coordinator, Student Academic Center, Indiana University
August 2012-Present
• Design the curriculum and hire, train, and supervise the graduate teaching staff for two courses
offered through the Student Academic Center.

- The first, “EDUC-X150: Becoming the Best Student” X150 is an 8-week concentrated crash-course in which students both 1) discover best practices and create and learn to use an individually tailored set of hard skills and strategies for academic study that they can apply in all of their classes (and beyond); and 2) grapple with the significance, and means of pursuing, the habits of heart and mind, the attitudes, qualities of character, and beliefs that inform best student behavior, learning, and academic success. About 600-700 students on average register for this course each academic year.

- The second, “EDUC-X159: You@IU,” is designed as an ideal beginning for freshmen and transfer students: the course decodes college, IU resources, and student development; connects students’ personal goals with choices of major, degree, and career; and engages students in campus life and high-impact educational practices. About 120 students on average register for this course each academic year.

- Produce the SAC’s online workshop series (http://sacblog.indiana.edu). This series focuses on a wide variety of topics and skills to enhance undergraduate academic success and provide students the tools they need to reach the ultimate potential of a college education. New episodes in the series are released regularly.

- Assist in coordinating the EDUC-X152 University Experience courses during the summers.

- Work one-on-one with academically struggling students on overcoming complex obstacles and developing individualized plans for college success.

- Speak across campus to various units about a wide variety of topics relating to student academics, including learning styles, college classroom culture, teaching international students, etc.

**Instructor, EDUC-X155 Critical Reading and Research Seminar. Topic: Unlocking Your Creativity.** Student Academic Center, Indiana University
Spring 2015-present

The primary objectives of this course are:

- The transformation and expansion of students’ received models of what human creativity means, how it is to be understood, and how it can be used across the boundaries of discipline, field of study, and profession.

- The reorientation of student perspectives toward a new sense of critical thinking as essential “equipment for living”: an ability that is absolutely necessary to be a fully reflective human being with the capacity to render understandable even the densest of problems and arguments in a complex world.

- The combination of theory and practice to produce intellectually engaged, high-impact creative work. In other words, students will actively apply critical thinking to an expanded notion of human creativity as they complete creative exercises throughout the semester and as a final project. The form these creations take will be subject to individual students’ particular disciplines, fields of study, hobbies and personal interests.

- The development of a set of sharpened and transferable reasoning skills, particularly as they can be used to analyze human experience and expressive forms, that students can apply to work in any university department or professional school and in the world beyond.
Education

Ph.D., Mathematics, University of Virginia, May 1992.
Theis Advisor: Loren Pitt.
Dissertation: “Escape Rates for a Conditioned 2-Dimensional Brownian Motion and
Recurrence Results for Analytic Zygmund Functions with Applications.”

Honor Thesis: “Periods of Continuous and Discontinuous One Dimensional Maps.”

Experience

Chair, Department of Mathematics, Indiana University, July 2014 - present
Professor, Indiana University, July 2010 - present
    Primary Appointment: Department of Mathematics
    Adjunct Appointments: Department of Biology and Department of Statistics
    Affiliated Faculty of The Center for Genomics and Bioinformatics and
    The Inquiry Methodology Program in the School of Education
Associate Professor, Indiana University, September 2002 - June 2010
Assistant Professor, University of Oregon, September 1994 - June 2002
Dunham Jackson Assistant Professor, University of Minnesota, Sept. 1995 - June 1996
Research Assistant Professor, Purdue University, August 1992 - May 1994
Center for Talented Youth Instructor, Johns Hopkins University, Summer 1992
Graduate Instructor, University of Virginia, June 1987 - May 1992
Intern Programmer, Trust Company Bank, Summers 1983 - 1985

Grants

• NSF Grant: Statistical Problems in Phylogenetics, 2012-2016, $200,000. Sole PI.
• Simons Foundation Collaboration Grant for Mathematicians, 2011-2013, $14,000. Sole PI.
• NSF FIBR Grant: Causes and Consequences of Recombination, 2003-08, $5,000,627.
  PI: Michael Lynch.
  Co-PIs: Mirian Zolan, Carla Caceres, Curtis Lively, Elizabeth Housworth.
• NSF Grant: Modeling Recombination, 2003-06, $120,143, funded in equal amounts from
  the Statistics Program in DMS and the Eukaryotic Genetics Program in MCB. Sole PI.
• NSF Interdisciplinary Grant in the Mathematical Sciences: Probability and Statistics in
  Ecology and Evolution, 2000-01, $100,000. Sole PI.
• NSF Faculty Early Career Development Award: Isoperimetric-Type Inequalities Arising
  from the Study of Brownian Motion in Domains Normalized by their Inradius, 1995-97,
  $51,000. Sole PI.
Awards

- Faculty Colloquium for Excellence in Teaching membership, 2014
- Trustees’ Teaching Award, Indiana University, 2010
- Evans-Hall Lectureship Award, Emory University, 2010
- G.T. Whyburn Fellowship recipient, 1986-1987
- Phi Beta Kappa, 1985

Selected Publications


Teaching

I teach courses for both the Mathematics and Biology departments. I have experience developing courses both at the graduate level and at the general education undergraduate level. For the latter, I developed a version of V118: Finite and Consumer Mathematics for the department.

Indiana University Service

I have had extensive service experience at Indiana University about curriculum issues. I chaired the Mathematical Modeling subcommittee of the General Education Committee when that committee was first formed. I served on the College Undergraduate Education Committee, on departmental undergraduate and general education committees, and on the Statewide General Education Quantitative Reasoning Committee. I have also served as a teaching mentor to junior faculty in my department.

Peer Tutoring

Partnering with Drew Koke and the College of Arts and Sciences, the department, under my leadership, is going to implement the PASS peer tutoring program in our two-semester Finite Sequence, D116-D117. This is one of the different methods for getting help outside of class that will be studied under this proposal.
LESLIE J. ROBINSON

Work Address: Director, Academic Support Center
Indiana University, Bloomington
Briscoe C125
1225 North Fee Lane
Bloomington, IN 47406
(812) 855-7016

Permanent Address: 3385 S. Oaklawn Circle
Bloomington IN 47401
(812) 369-6224 (cell)
ljrobins@indiana.edu

Education

Doctor of Philosophy - Indiana University, Bloomington, Indiana.
November 2007.
Major: Higher Education Administration
Minor: Theater
Dissertation: Females, Functions and Finite: Women’s use of group mathematics tutoring and its impact on major choice

Master of Arts – Indiana University. Bloomington, Indiana,
Major: English

Bachelor of Arts - Emory University, Atlanta, Georgia.
May 1987.
Major: English/Theater

Professional Experience

Director, Academic Support Center August 1996 - present
Indiana University, Bloomington, Indiana

Assisted in the creation of a new support program designed to help with first-year retention, with an emphasis on under-represented populations. Manage and supervise three on-campus academic support centers (each center provides on-site tutorials for approximately 50 students per night). Supervise and train graduate assistants and approximately 50 writing, math, and subject-area tutors. Construct an annual budget. Work with numerous other programs to plan, maintain and utilize physical spaces as well as to promote support services across campus and to the general public. Oversee the collection of student data and the maintenance of a database as part of an ongoing assessment initiative to evaluate effectiveness of support services in terms of various outcomes, including student retention and academic success. Collaborate with other offices at the institution to help them with various assessment needs, with an emphasis on program evaluation and informal studies of student learning. Serve as liaison between academic advisors, instructors and academic departments where support needs are a concern. Engage in both short-term and long-term strategic planning for the program. Participate in service activities. Occasionally teach introductory composition courses through the English department. Work directly with students, parents and faculty as a contact person for campus resources.
Helped many students with writing from a variety of disciplines, working with them at any stage of the writing process. Participated in numerous training sessions to improve tutoring skills and to remain current in terms of writing assignments and other faculty concerns. Wrote various pamphlets on writing topics intended for student use.

**Associate Instructor, Department of English**  
Indiana University, Bloomington, Indiana  
August 1992 – May 1996

Taught multiple sections of introductory courses in composition, with an emphasis on basic skills sections. Responsible for designing course structure, syllabi, and specific assignments. Graded all student work and held office hours and conferences to work individually with students to help them improve their writing skills.

**Instructor, Department of English**  
Indiana University-Purdue University at Indianapolis  
Indianapolis, Indiana  
August 1990 – May 1992

Taught multiple sections of introductory courses in composition using a variety of methods, including computer-based. Responsible for designing course structure, syllabi, and specific assignments. Graded all student work, using a portfolio method of evaluation. Met regularly with students in office hours and conferences to improve their writing skills.

**Associate Instructor, Department of English**  
Clemson University, Clemson, South Carolina.  
August 1988 – May 1990

Taught multiple sections of introductory courses in composition. Graded all student work and held office hours and conferences to work individually with students to help them improve their writing skills.

### Publications


### Selected Presentations


Professional Service

**Professional Associations**
American Educational Research Association
Association for the Study of Higher Education
Association of College Personnel Administrators
National Association of Student Personnel Administrators

**Indiana University, Bloomington**
Member of Diversity Leadership Conference planning committee – 2013-2014
Member of various hiring committees – 2012-2013
Indiana Project on Academic Success (IPAS) Scholar – 2004-2005
Reviewer and Visiting Researcher, Center of Inquiry in the Liberal Arts – 2004-2005
Lumina Conference on retention and assessment – Spring 2004
Member of Student Academic Center review committee – Spring 2002
Gabriel Ancil
501 W. Nelson Street  gabriel.ancil@gmail.com
Marion, IN 46952  765.669.0766

EDUCATION
Indiana University: Hutton Honors College, Bloomington, IN  May 2018
B.A./M.A. Candidate: International Studies
B.A. Candidate: Sociology Majors
Minor: Psychology  GPA: 3.92
Achievements:
• Member of Phi Beta Kappa Honor Society
• Recipient of the Ulysses Grant Weatherly Award
• First generation college student

PROFESSIONAL EXPERIENCE
Middle Way House, Bloomington, IN
Crisis Line Intern  August 2016- Current
• Provides support and resources to callers on the crisis hotline using an empowerment model to enhance survivors’ power and control
• Performs shelter intakes and promotes the wellbeing of residents as first contact in shelter

Student Academic Center, Bloomington, IN
Teaching Intern  August 2016-Current
• Research assistant to Dr. Andrew Koke, Basic Skills Coordinator of the Student Academic Center
• Assists students in setting realistic SMART goals, creating weekly time management schedule
• Guides students through use of resources to promote success and overall health

T.I.S. Bookstore, Bloomington, IN
Cashier  August 2014- August 2016
• Collaborated with 12 other workers as a team to provide a quality customer shopping experience
• Utilized technology and company specific merchant software to maintain an efficient business

American Wireless Entertainment, Marion, IN
Sales Representative  May 2013 – July 2014
• Facilitated communication with executives and fellow representatives to create a welcoming environment
• Selected as a top representative to represent the company exhibit in Exposition Hall at the Indiana State Fair and later celebrated as the second most lucrative representative of the two week event

INTERNATIONAL EXPERIENCE
Ghana  Summer 2016
• Developed cross-cultural skills and awareness of contemporary social challenges while experiencing vastly different cultural values and norms

Morocco  Summer 2016
• Volunteered with an NGO for women’s empowerment, Jossour FFM, by translating informational documents and researching both efficient empowerment programs and grant opportunities
• Volunteered at Lalla Meriem Center Orphanage with the severely disabled to provide daily care, enrichment

LEADERSHIP & ACTIVITIES
Sigma Iota Rho  April 2015 - Current
• Director of Recruitment and Social Media Director for the International Affairs Honor Society

The Thirst Project  April 2015- January 2016
• Activist against the water crisis; gained fundraising skills and ability to create awareness and plan events

Junior Statesman of America  Summer 2009, 2010
• Participated in summer school program at Stanford University and Georgetown University
PRESENTATIONS

“Embedded Peer Tutoring in Mathematical Disciplines: How and Why”
IUPUI National Mentoring Symposium (October 2016)

“Friends, Family, Funds, or Failure: Pick One. The Challenges of Being a Low-income College Student”
Sociology Department Symposium (April 2016)

“Friends, Family, Funds, or Failure: Pick One. The Challenges of Being a Low-income College Student”
Hutton Honors College Symposium (April 2016)

HONORS AND AWARDS

Ulysses Grant Weatherly Award,
Indiana University Department of Sociology (May 2016)

Phi Beta Kappa
The Phi Beta Kappa Society (December 2016)

Hutton Honors Undergraduate Research Grant
Indiana University, Hutton Honors College (Spring 2016)

ADDITIONAL SKILLS

- Two years of both collegiate French and Italian language and culture
Ellen M. Brennan

317-417-8374 | ellbrenn@indiana.edu

Education and Honors

International Baccalaureate high school diploma
Junior at Indiana University, attaining a Bachelor of Arts
GPA: 3.93/4.00
Majors: Economics, Political Science, German
Hudson and Holland Scholar
Hutton Honors College Scholar
Indiana University Foundation Scholar
Scholarship of Teaching and Learning Grant receiver (2016)

Skills

Work skills
· Tutoring (effective communication and understanding, mastery of area knowledge)
· Restaurant training (sanitizing, cashiering, solving customers’ problems thoroughly, cooperation/teamwork, following daily procedures)

Relevant classes
· Intro to Micro and Macroeconomics, Intermediate Micro and Macroeconomics
· Analyzing Politics Y205
· Statistics in Business and Economics E370
· Applied Econometrics E371 (Stata software)

Foreign Languages
· Portuguese at native level
· Spanish with fluency
· German at conversational level

Work Experience

Jan. 2015-current      Tutor in Economics, Indiana University Student Academic Center
· My job is to help groups of 5-20 IU students in Economics, an important class in the business setting, to better grasp the more difficult concepts of the subject through the use of pedagogical techniques and clear illustrations.

· I started out as a crew member doing typical restaurant chores and moved up to more managerial tasks such as inventory count, supply orders and creating deployment charts, in addition to training new employees to succeed.

Relevant Experience

· Collecting, compiling and analyzing personal survey data inferentially on relevant topics around campus for Analyzing Politics class. Jan-May 2015.
· Extensive Excel data manipulation in Business and Economics Statistics class
· After school tutor/mentor to underprivileged young children in West Philadelphia, demonstrating patience and service to the community. Sept-Oct 2013.
Evelyn Delph
861 Winter Court, Carmel, IN 46032
317-775-0602
evdelph@indiana.edu

Education
Indiana University Bloomington, IN
Bachelors in Accounting, Business Analytics and Information Systems Management
Current Cumulative GPA: 3.89
Expected Graduation: May 2019

Work Experience
Student Academic Center- Peer Assisted Study Sessions Paid Intern August 2016-Present
- Led peer assisted study sessions for two microeconomics classes that entailed planning extra assignments, answering homework questions, and creating a thriving educational atmosphere
- Proctored exams and edited required homework assignments for the class in a timely manner

Human Resources and Activities Assistant for CarDon Associates at Copper Trace May 2016-August 2016
- Recruited and conducted first round interviews for potential servers, chefs, cooks, certified nursing assistants, licensed nurse practitioners, and registered nurses
- Corrected mistakes in excel files such as reestablishing dimensional functions and created new spread sheets to indicate those who attended mandatory meetings and conferences
- Planned and executed various activities and events for the residents in each of the three different units, including two skilled care and rehabilitation

Receptionist for CarDon Associates at Carmel Health and Living Wellness Center May 2015-August 2015
- Coordinated care plan meetings with residents, their family members, and various staffers
- Communicated with the residents, referrals, and family members, in order for their admission into the facility
- Updated files and maintained organization to optimize the efficiency within the facility

Campus Involvement
Peer Tutor Coach for the Kelley School of Business K-201 Program January 2016-Present
- Volunteered for a K-201 Access and Excel class that focused on learning how to work with multi-relational databases and complex functions in order to keep data integrity
- Held additional hours at review sessions and privately held sessions on a volunteer basis outside the class room to work individually with students who struggled with the material

Secretary for the Read Residence Hall Conduct Standards Board August 2015-May 2016
- Attended conduct board case hearings and acted as the secretary who documented each case thoroughly and correctly in order to keep record of hearings in anticipation of appeal
- Analyzed cases and hearings with the conduct board to achieve a proper action plan for the rule offender

Awards
Indiana University Founders Scholar
- Inducted by deans of the university
Indiana University-University Division Highest Honors Deans Distinction
- Maintained above a cGPA3.8 for fall semester 2015 and spring 2016
Joseph M. Freeman

Current Address (until May 2017)
1900 East 10th Street
Bloomington, IN 47406

freemajm@indiana.edu
(260) 564-4726

Permanent Address:
4165 E Baseline Rd.
Albion, IN 46701

EDUCATION & HONORS

Indiana University, Kelley School of Business
Bloomington, IN
Bachelor of Science in Business
• Majors: Accounting B.S. and Finance B.S.
• Dean’s List - Spring 2016
• Scholarships:
  o Indiana University Provost Scholarship (Indiana University Achievement Scholarship based on high academic performance)
  o Indiana Army National Guard Minuteman Scholarship (selected from all National Guard Cadets in the State of Indiana based off of GPA and Physical Fitness)
  o The Cole Foundation Scholarship (high academic achievement, community enrollment, and family situation)

Fort Leonardwood, C Company 31st Engineer Battalion
Fort Leonardwood, MO
One Station Unit Training
• Completed Basic Training to develop discipline, organizational competence, and leadership skills
• Finished Advanced Individual Training to become a Combat Engineer in order to provide sustainability, mobility, and survivability of fellow comrades
• Achievements: Inspection Four Finalist, Carbine Marksman, and Expert Grenade

EXPERIENCE

Teaching and Leadership Experience

Microeconomics Teaching Internship
August 2016-Present
Undergraduate Internship directly teaching Microeconomics students in a small classroom setting
Bloomington, IN
• Research and prepare instructional materials to aid in teaching microeconomic concepts
• Evaluate Class performances compared to peers and be held accountable

Army Leadership

Indiana University Reserve Officers’ Training Corps (ROTC)
January 2016-Present
Team Leader
Bloomington, IN
• Serve on the Equal Opportunities Committee to formulate a comprehensive effort to maximize human potential, and ensure fair treatment for military personnel
• Led fifteen soldiers with limited time and resources on a counterterrorism training exercise in order to strengthen leadership skills and the ability to perform under pressure
• Coach, mentor, and teach new cadets to become acclimated to and proficient in a new environment
• Surpassed a perfect score of 300 on the Army Physical Fitness Test, by scoring 338 as a result of dedication to the Soldiers Creed

Community Engagement Experience

Noble County Community Foundation Grants Review Committee
August 2013-June 2016
Board Member
Albion, IN
• Quarterly review ten to twenty grant requests varying in amount up to 25,000 dollars in order to further develop Noble County through public service organizations and projects
• Actively participate in meetings to analyze grant requests and determine if the requests will aid in improving the quality of life in Noble County

National Honors Society
March 2012-June 2015
President
Albion, IN
• Plan and facilitate weekly meetings, focusing on efficient use of allocated time in order to maximize community benefit through philanthropic events (ex: Operation Thanksgiving Day baskets)
• Foster leadership among members by enabling them to make important decisions (such as allocation of funds), make mistakes in their decisions, and learn from those mistakes
Benjamin Hogenkamp

Permanent Address:
9855 Covington Blvd
Fishers, IN 46037

Current Address:
1210 E 3rd St,
Bloomington, IN 47406

behogenk@indiana.edu
(317) 358-9813

EDUCATION

Indiana University — Bloomington, IN
Bachelor of Science in Economics
Majors: Economics & Mathematics

Applicable Coursework:
• The Computer in Business
• Economic and Business Statistics
• Business Law and Ethics
• Micro and Macro Economics

PROFESSIONAL EXPERIENCE

Indiana University Student Academic Center — Bloomington IN
Teaching Intern January 2016 - Present
• Lead session ranging from 10 to 30 Indiana University undergraduate students and use collaborative group studying techniques to explain complicated concepts of micro and macro economics
• Collaborated with colleagues to develop new techniques to manage group studying to help improve the education of Indiana University undergraduate students
• Developed classroom plan each week with Economic professor to ensure students understand concepts

Piano Solutions — Carmel, IN
Piano Logistics May 2012 - Present
• Managed piano delivery with fellow co-workers to ensure successful delivery of the delicate and heavy instruments and the safety of co-workers
• Coordinated delivery of pianos using observation skills and data to customers each work day
• Ensured customer satisfaction through post-delivery communication while gaining customer service skills

LEADERSHIP & INVOLVEMENT

Hutton Honor College Symposium — Indiana University
Case Study Analyst and Presenter April 2016
• Analyzed case study about the impact of Peer Assisted Study Sessions (PASS) on Student Grades in ECON-E201 while handling $5000 in grant money
• Collaborated with team of five to draw conclusions using inferential statistics collected at Peer Assisted Study Sessions
• Presented findings to Hutton Honors College Symposium including audience of professors and faculty

Lambda Chi Alpha, Alpha Omicron Zeta Chapter — Bloomington, IN
Philanthropy Committee August 2015 - Present
• Coordinated philanthropy events for 120 fraternity members to further philanthropic involvement of Lambda Chi Alpha
• Gathered necessary supplies to run events with fellow committee members

SKILLS & INTERESTS

Excel • Inferential statistics • Fishing • Golfing • Hiking
Alexander Rangazas
azrangaz@indiana.edu
205 S. Jefferson St.
Bloomington, IN 47408
317.374.9503

EDUCATION
Indiana University: Hutton Honors College
Bachelor of Arts; Economics and Mathematics Double Major
  • Cumulative GPA: 3.9/4.0; Major GPA: 3.9/4.0

WORK EXPERIENCE
Federal Reserve Bank of Atlanta
Summer Panel Coordinator
Atlanta, GA
May 2016 – August 2016
  • Worked on the BIE (Business Inflation Expectation) and Decision Maker Panels
  • Developed strategies for recruiting firms based on industry, resulted in doubling the average number of firms recruited (40/week vs. 20/week)
  • Identify target sectors and regions by cross referencing GDP shares with precentages on panels

Indiana University – SAC (Student Academic Center), Biology Dept, and Political Science Dept.
Research Assistant
Bloomington, IN
January 2016 – Current
  • Perform statistical analysis on data sets (STATA and Excel) to determine effectiveness of various classes at IU
  • Cleanse Excel data sets

Indiana University – SAC (Student Academic Center)
Teaching Intern
Bloomington, IN
August 2014 – Current
  • Lead help sessions for Intro Micro and Macro Economics
  • Developed techniques to facilitate collaboration between students
  • Students in my section exam scores improved by 11%

Indiana University – Economics Dept.
Undergraduate Intern
Bloomington, IN
January 2015 – May 2016
  • Grader for Honors Intermediate Macro: graded Homework, Exams, and Final Exam
  • Graded and Held office hours for Intermediate Micro Economics

SKILLS/ACHIEVEMENTS
Communication: Lead groups of students (20-30) in activities and lectures, selling CEOs and CFOs on validity and importance of participating in Federal Reserve survey panels.

Technical: Proficient in Excel, PowerPoint, STATA, R. Experience in Matlab, Python

Achievements: Phi Beta Kappa Honor Society, Eagle Scout, HOBY Leader, won research grant
Jait Shukla

Current Address: 1800 East 10th Street, Ashton-Vos 211, Bloomington, IN 47406, USA
jshukla@umail.iu.edu
Permanent Address: 302, Saachi-II, Vasna Road, Baroda, Guj. - 390007, India
(812) 349-8080

EDUCATION

Indiana University, Kelley School of Business, Bloomington, IN, May 2019
Bachelor of Science in Business (150 credit hours to be completed upon graduation)
Major: Accounting and Finance; Co-Major: Business Analytics
Overall GPA 3.87/4.00
Accounting Coursework GPA 4.0/4.0

Academic Honors:
- University Division Scholar of High Distinction
- Phi Eta Sigma National Honor Society at Indiana University

WORK EXPERIENCE

Student Academic Center, Indiana University, Bloomington, IN, August 2016 - Present
Teaching Intern
- Tutor approximately 30 students in the Principles of Microeconomics course and help create study strategies to achieve goals
- Conduct study sessions, permitting students to review content, ask questions, and discuss concepts
- Contribute towards PASS (Peer Assisted Study Sessions) program along with a team of eight representatives

Deloitte Haskins & Sells LLP, Ahmedabad, India, Summer 2016
Intern, Tax – Transfer Pricing
- Selected among various candidates of the only one available position for Transfer Pricing Intern
- Exposed to Transfer Pricing (TP) Reports; understood and practiced presenting Industry Overview, FAR analysis for two key projects
- Learned TP documentation procedural requirements; acquainted with BEPS and OECD guidelines

ACTIVITIES

Kelley Peer Coach – A100, Basics to Accounting, March 2016 - Present
- Volunteer in classroom as a tutor for the Basics to Accounting course at the Kelley School of Business
- Teach, supervise, and train students using easy-to-understand concepts and hands on experience
- Offered assistance to approximately 60 students in past six months

Student Accounting Society, Platinum Member, Indiana University, August 2016 – Present
- Volunteer and participate in professional, social and community events with peers interested in an accounting major

Dance Team Member, IU Jhanak, September 2015 - Present
- Performed Indo-western dance shows for six events in past one year, in and around Indiana

Conduct Board Member – Foster Residence Hall, September 2015 - May 2016
- Collaborated with 10-person governing body for student misconduct cases
- Provided guidance and disciplinary action for approximately 20 misconduct cases

Teaching Assistant – Accounting Department, October 2016 – Present
- Assist with exam proctoring and other instructional responsibilities for accounting courses

A100, Basics to Accounting
Minglin (Wilson) Zhao
1150 Clarizz Blvd #283B, 5 Road, Bloomington, IN 47401
zhaoming@indiana.edu; (812) 360-3028

EDUCATION
Indiana University, College of Arts and Sciences, Bloomington, IN
Bachelor of Arts in Economics, Minor in Business Finance Expected May 2017
- Cumulative GPA: 3.51/4.00
- Relevant Coursework: Money and Banking, Microeconomics, Macroeconomics, Business Finance, Accounting, Statistics, Intro to Econometrics, Financial Economics

PROFESSIONAL EXPERIENCE
Indiana University, Bloomington, IN 2015 - Present
SAC Teaching Assistant
- Assisted in teaching Economic statistical lessons on Stata.
- Conducted daily office hours to work with individual students and improve students’ understanding of course materials.

Hechuang Capital Management LLC., Guangzhou, China Summer 2016
Summer Equity Analyst
- Conducted research on China’s Futures Markets and examined potential factors that will lead to future volatility.
- Performed analysis on Crude Oil based on the prediction of Iran and OPEC producers’ actions via game theory.
- Managed and tracked the firm’s daily trading activities.

Moveha, Inc., Sunnyvale, CA Spring 2016
Business Development Intern
- Drafted CampusRoom project pitch book, and promoted the new product line in California.
- Researched on existing rental service companies in the U.S., and then analyzed their business models base on SWOT, 4P/5C and other theory models.
- Created social media contents to advertise the services offered by Moveha.
- Assisted in improving company’s brand image and exploring potential investors.

J.P Morgan Asia, Inside the Industry Program, Hong Kong, China July 2015
Selected Participant
- Attended a series of presentations and case studies, including the IPO of a major Chinese jeweler.
- Developed financial knowledge about China by working with a team to share best practices and insights.

INDEPENDENT WORK
BNP Paribas Ace Manager Case Competition Spring 2015
Participant
- Evaluated ten investment banking case studies.
- Conducted extensive outside research in different financial models and industries.
- Compared financing alternatives based on financial risks and key investment highlights/concerns.
- Topics Included: asset valuations, joint ventures, leveraged buyouts

ACTIVITIES/LEADERSHIP
International Student Investment Group Fall 2014
IU X-Power Dance Studio (Finance Vice President) Fall 2015

SKILLS/PUBLICATION
Technical: Microsoft Office Suite, Social Media, Stata
Language: Fluent in both Mandarin and Cantonese Chinese.