

# Annual Report 2014-2015

**Searle Center**  
**for Advancing Learning & Teaching**



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## INTRODUCTION

“Transforming student learning.”

This short phrase succinctly captures the work and mission of the Searle Center for Advancing Learning & Teaching. Through its wide range of programs, services, research and scholarship, the center seeks to assist all members of the Northwestern community who are engaged in the development and promotion of “cutting edge” learning environments and experiences for their students, their colleagues and themselves. We work with everyone in this enterprise including faculty, postdocs, graduate TAs and instructors, undergraduate peer mentors, clinicians, and administrators. The Center also engages in broad national and international conversations and collaborations with those who study and promote the facilitation of learning in higher education.

The Searle Center is composed of four major units: Faculty Programs, Graduate Student Programs, Undergraduate Programs, and Research & Evaluation projects. A center associate Director directs each of these units. In each of the first three we provide seminars, talks & workshops, designed to provide information and practical guidance on specific topics of learning and teaching, as well as long-term programs designed to prompt more profound changes in participants, such as our year-long Searle Fellows faculty program, our Graduate Teaching Certificate Program, and our Gateway Science Workshop program. We also provide a wide variety of linked services, including individual consultation and classroom analysis, as well as resources, including an extensive collection of books on teaching and learning housed in our Center Library. In the research and evaluation unit, we collaborate with faculty, staff and students on a wide variety of disciplinary and cross-disciplinary projects. These range from smaller projects, with individual faculty experimenting with new teaching techniques, to large nationally and internationally funded programs.

### Some 2014-2015 Highlights

In the past academic year we continued to extend the work arising from the strategic plan we developed in 2010 and began implementing the several funded projects we had won in the previous year. As a result we have, once again, seen innovation in our programs and projects, and increase in demand and growth in participation of faculty and graduate and undergraduate students in them. Highlights include:

**Faculty Programs Unit.** This year, in collaboration with the Office of the Provost and the University Assessment and Re-Accreditation Council, we offered the second annual university-wide annual Learning, Teaching and Assessment Forum, “Critical Reflections on Learning.” Over 146 faculty, staff, and graduate students attended the event, with over 19 people presenting. In addition the Searle Fellow program “graduated” 16 more Searle Fellows and their mentors with substantive contributions and innovations in learning and teaching. Several new publications in learning and teaching have resulted from this work.

**Graduate and Postdoctoral programs Unit.** This year over 300 graduate students attended the New TA Conference and 51 graduate students and postdocs from over 37 disciplines

currently participating in the 2014-2015 Teaching Certificate Program. Over 90 applications have been received for the 2015-2016 program as demand continues to rise for these and other programs. With support from the Graduate School, we continue to foster a thriving graduate student learning communities through the training of Graduate Teaching Fellows who lead Searle grad workshops) and the Graduate Teaching Mentors who provide peer feedback to fellow graduate students. In addition, the Center for the Integration of Research, Teaching, and Learning (CIRTL) at Northwestern had a successful year with the launch of the Searle Teaching-As-Research (STAR) program for graduate students and postdocs in the STEM disciplines.

Undergraduate Programs Unit. In 2014-15 we ran our first year of the Undergraduate Program for Advancing Learning (UPAL), developed in partnership with Weinberg College to primarily serve at-risk students. Participant response to UPAL has been very positive, and initial evidence suggests that participants improve their approaches to studying. We also ran our first full year of the Peer-Led Undergraduate Study (PLUS) program, a collaboration with Residential Academic Initiatives, which offers drop-in peer-mentored study for students in science, math, and social science courses, as well as support with written assignments from the Writing Place. This year we also launched the Undergraduate Academic Resource Portal ([www.northwestern.edu/searle/academic-portal](http://www.northwestern.edu/searle/academic-portal)), a comprehensive resource for undergraduates looking for information on academic support across the university.

In our research and evaluation sphere, we collaborated with faculty on over 20 projects including: institutional projects such as the CTEC pilot, CIRTL (funded by NSF), nuViBE project in Biology (funded by HHMI), Teagle project in history; as well as national collaborations with peer institutions such as Duke University; and several international collaborations such as An Najah University in the West Bank (funded by USAID).

In addition our staff have taken leadership roles in a wide range of new cross university strategic ventures including the Students in Transition Council, the university diversity curriculum initiative, the development of the university's fifteen Coursera Massive Open Online Courses (MOOCs) and Learning Management System review. But these are just a few of the activities that the Center has engaged with over the past year. I encouraged readers to learn more about our activities in the pages below.

Greg Light, Director  
Searle Center for Advancing learning and Teaching

## I. PROGRAMS

The Searle Center provides a variety of programs for faculty, graduate students, and undergraduate students. These range from one-off workshop sessions to year-long programs designed to change participants' approach to teaching.

### Faculty Programs

The Searle Center offers a range of faculty development opportunities, from ad-hoc, one-off roundtables and workshops, to more substantial programs designed to enhance teaching and learning. Please see the Appendix for more detailed information on participation numbers and evaluation of these programs.

#### The Searle (Junior/Early Career) Fellows Program

The Searle Fellows program is a comprehensive, year-long (eight month) faculty development program for pre-tenure, early career faculty. The program seeks to provide faculty with the expertise and knowledge to critically assess and solve problems in their courses. To participate in the program, applicants must provide a description of a teaching project related to a course they teach. In most cases, faculty are nominated for the program by deans or department chairs and self-select in or out according to their ability to participate in all program events.

The program has two main objectives: (1) to strengthen the participants' knowledge, understanding, and expertise in learning and teaching; and (2) to help them develop a project that will foster deep student learning. These projects usually focus on the development of a new course or curriculum, the revision of an existing course or curriculum, or the revision of a key assessment strategy in a course, curriculum, or other learning context. During the year, faculty participate in 4 dinner meetings, an overnight retreat in fall, a full-day retreat in spring, 3-4 workshops, 3 project meetings, evaluation activities (small group analysis of their class etc.), development of a project related to a course they are teaching. Fellows must communicate their project findings and reflections through a written critical account, a group poster, and presentation at the final celebratory dinner. This year, 16 early-career tenure-line faculty completed the full program. Sixteen senior faculty served as their mentors. Of these, 1 was a returning mentor, and 5 were former Fellows. In addition, we asked two prominent Searle Fellows to return and speak about their pedagogical innovations: Sarah Jacoby from Religious Studies spoke about her work on enhancing critical thinking in her students while Megan McHugh from Feinberg described innovative features of her teaching, including how she has used technology to support learning. In addition, a number of current and former Searle Fellows facilitated sessions in the university's second annual Learning, Teaching, and Assessment forum.

### Shorter, One-Off Sessions

#### Learning, Teaching and Assessment Forum "Critical Reflections on Learning"

This year, in collaboration with the Office of the Provost and the University Assessment and Re-Accreditation Council, we offered the second annual university-wide annual Learning, Teaching and Assessment Forum, "Critical Reflections on Learning." Over 146 faculty, staff, and graduate students attended the event, with over 20 people presenting. This university-wide event is designed to:

- Provide faculty, doctoral students, and administrators the opportunity to showcase their assessment initiatives at the class, department/program, school, and/or university levels.
- Share and highlight teaching & assessment innovations, strategies, practices, and outcomes.
- Demonstrate the University's assessment framework in practice.
- Promote dialogue about assessment, its purpose and value for improving learning & teaching.

### **Faculty Workshop Series**

We offered 18 workshops this year, focusing on a range of topics including: promoting critical thinking, assessment and grading, and course evaluation. Four sessions focused in particular on assessment, and three on student diversity. One of these workshops (Developing Effective Learning Objectives) was offered online, to improve access for instructors who find it challenging to come to our workshops in person.

### **New Faculty Workshop (NFW)**

This full-day interactive session featured an overview of designing learning objectives, promoting active learning and critical thinking, and assessing student learning. We also offered a session with undergraduates, and a focus group with representatives from various campus divisions (CAPS, Athletics, disabilities, and academic integrity). Thirty new faculty participated in the program.

### **Teaching, Learning & Technology (TLT) workshops**

In collaboration with Academic and Research Technologies, we offered two workshops on “Using Rubrics to Enhance Learning,” which focused on both the pedagogy surrounding the use of rubrics, focusing on the new rubric function in Canvas. In collaboration with Eryk Salvaggio and Jami Mathewson from the Wiki Education Foundation and Aaron Shaw, we offered a workshop on “How can Wikipedia be used meaningfully to promote learning? Explained best practices for using Wikipedia as a tool to enhance learning.”

### **University Teaching Roundtables (UTR)**

The UTRs are sponsored by the provost and hosted by the Searle Center. Each roundtable—meant to be an interdisciplinary forum exploring current topics in teaching and learning—is led by a Charles Deering McCormick Professor of Teaching Excellence, a McCormick Distinguished Lecturer, or an Alumnae of Northwestern Teaching Professor, the highest awards for teaching offered by the university. Recipients are appointed as fellows of the Searle Center and contribute to Searle events.<sup>1</sup>

- Teaching Outside Your Comfort Zone
- Teaching Empathy - Using Playwriting As A Way To Experience Multiple Points of View

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<sup>1</sup> Please see Appendix for details.

- Making Connections Between Courses
- Enhancing Learning Through Play and Entertainment

### **Specialized Internal Workshops and Sessions for faculty**

We also conducted specialized workshops and sessions for specific units at Northwestern, tailored to the needs of individual departments and programs. We offered

- an orientation for new Calculus faculty (WCAS) (Fall 2014)
- a session for first-year seminar instructors (WCAS) (Fall 2014)
- a session for faculty teaching diversity-themed courses (WCAS) (Fall 2014)
- a full-day retreat for faculty in Human Movement Sciences (FSM) (Summer 2015)

### **MOOC Initiative**

Since 2013, the Searle Center has been actively involved in the development of Coursera MOOCs taught by Northwestern faculty. We have consulted on five MOOCs this year, as well as two specializations consisting of five individual courses and capstone projects, offering advice on the alignment of learning objectives and assessment strategies, and feedback on specific assignments and course activities. Through our representation on the Coordinated Service Center (CSC), we have helped develop different processes related to the successful creation and running of MOOCs and are working on assessing the overall impact of the MOOCs on faculty and students.



## **PROGRAMS FOR GRADUATE STUDENTS**

The Center leads a number of programs and events to support the professional development of graduate students and postdoctoral fellows at various levels throughout their career. Throughout the year we offer continuing support to graduate students and postdocs as they develop their approaches to teaching in their disciplines. We provide more extensive preparation for teaching through our year-long Teaching Certificate Program and Graduate Teaching Fellows program. Please see the Appendix for more detailed information on participation numbers and evaluation of these programs.

### **Teaching Certificate Program**

Serving graduate students and postdocs across disciplines, this twelve-month program prepares participants to teach at the university level through a series of workshops, seminars, and small-group discussions. The program integrates reflective activities to encourage critical thinking and ways to create inclusive learning environments. By the end of the program participants have designed a learner-centered course (with assessments, activities, and evaluation plan), developed a statement of teaching philosophy, and created a teaching portfolio. The Searle Center and The Graduate School jointly funds 6 part-time Graduate Teaching Mentors who assist the Director by facilitating the discipline-specific, small-group discussions and by providing peer feedback and guidance to participants. This year there were 71 participants, 10 of whom were postdoctoral fellows.

### **Graduate Teaching Fellows Program**

The Graduate Teaching Fellows (GTFs) are a group of eight graduate students with a demonstrated commitment to teaching excellence who wish to contribute to the pedagogical development of their fellow graduate students. Appointed for a full academic year, GTFs work with the Searle Center staff to develop programming and resources to improve student learning at Northwestern. Selected in the spring via a competitive application process, the Fellowship comes with a stipend of \$3000, which are funded by The Graduate School. Last year, an additional position was funded by the Department of Political Science.

This was the fifth year for the program. Among other activities, the Graduate Teaching Fellows develop workshops for the New TA Conference and the Graduate Workshop Series; conduct teaching observations for graduate students; and develop discipline-specific projects aimed at providing mentorship and improving undergraduate student learning and graduate student teaching in their home departments.

### **CIRTL at Northwestern**

The Center for the Integration of Research, Teaching and Learning (CIRTL) is a national NSF-funded teaching and learning center in which member institutions work to advance the teaching of science, technology, engineering, and mathematics (STEM) disciplines in higher education, particularly by providing programs for future faculty professional development. The program emphasizes three CIRTL core ideas: Learning-through-Diversity, Learning Communities, and Teaching-as-Research.

CIRTL at Northwestern is comprised of a suite of programs and events aimed at improving student learning in the STEM disciplines through future faculty professional development. There are four central programs: Mentored Discussions of Teaching, a STEM-focused track of the Teaching Certificate Program, STEM workshops, and the



Searle Teaching-As-Research Program. Mentored Discussions of Teaching was initiated in Spring 2013. This year the program was offered twice (Fall and Winter of 2014-2015 academic year) serving 22 graduate students and seven postdoctoral fellows. A pilot teaching-as-research (TAR) program was launched in January 2015. This two-quarter program included two postdoctoral fellows and three graduate students, who were also current or former participants of TCP. Searle Teaching-As-Research (STAR) participants attended multiple workshop-style meetings to actively discuss TAR questions, study design, data analysis, and interpretation.

### **New TA Conference (NTAC)**

The New TA Conference (NTAC) is a one-day conference for new TAs at Northwestern held in September. The Conference is designed to help graduate students prepare for their roles and responsibilities as new TAs as well as provide an opportunity to develop strategies for effective practices in their discipline. Through three workshops, including 23 discipline-specific workshops and 13 sessions on topics such as “Leading a Lab Section” and “Facilitating Discussion Sections,” new TAs work with an NTAC Workshop Leader or Graduate Teaching Fellow to learn about specific skills and critical issues at Northwestern. This year, 317 new TAs registered for the event, and 303 new TAs attended. All workshops are developed and facilitated by Graduate Teaching Fellows and NTAC Workshop Leaders who are graduate students trained by Searle Center staff. On a 5-point scale, the average evaluation rating for the conference sessions was 4.3. The conference includes a panel introducing new TAs to student support services and resources on campus, including Accessible NU, CAPS, and the Office of Academic Integrity.

### **NTAC Workshop Leaders and Teaching Consultants (TCs)**

The Searle Center provides four days of training for the NTAC Workshop Leaders to develop and implement workshops at the New TA Conference. Over the two days of training in June, Workshop Leaders learn about effective approaches to teaching and learning while developing the skills necessary to implement two interactive workshops, one for students in their discipline, and another team-taught workshop focused on a cross-disciplinary topic. In August we provide a venue for the NTAC Workshop Leaders and Graduate Teaching Fellows to run through portions of their workshops and receive peer feedback. This year, we had 24 NTAC Workshop Leaders participate in the program from a diversity of disciplines. Outstanding Workshop Leaders have been appointed as TCs, who receive further training in classroom practice and observation. The TCs conduct Small Group Analyses (SGAs) for faculty and graduate students at Northwestern throughout the year. The Searle Center employed 12 TCs this year.

### **Graduate Workshop Series**

To provide continuing support to graduate students in their teaching, we offer interactive workshops in the fall, winter, and spring quarters. Workshops are developed and facilitated by Center staff as well as trained Graduate Teaching Fellows. This year we offered 14 workshops on topics such as “Diversity and Inclusion in the STEM Classroom,” “Designing and Implementing Rubrics” as well as “Promoting Debate in the Classroom.” We had a total of 152 graduate students attend our workshops throughout the year, with a range of 5-16 students at each session. On a 5-point scale, the evaluation average for this series was 4.5.

## **PROGRAMS FOR UNDERGRADUATE STUDENTS**

### **Gateway Science Workshop (GSW) program**

Begun in the late 1990s, the GSW program brings undergraduates together in small groups (5–7 students) with a peer mentor, to work on challenging conceptually oriented problems related to a STEM course. Groups meet weekly for two hours, and peer mentors meet an additional 2 hours with the course professor or TA to review the worksheet problems. Peer mentors also take an education course concurrent to their mentoring; see SESP 291 below. The GSW program has consistently shown, on average, an advantage in course grade for participants over non-participants, even when controlling for GPA and/or SAT-math score. Results have been presented and published in a variety of venues and peer-reviewed publications.

During 2014–2015, we had 783 registrations within 23 courses within the Chemistry, Biology, Physics, and Mathematics Departments, as well as the McCormick School of Engineering. Groups met with 79 peer mentors, 15 of whom are second-year “senior” mentors who also help lead weekly training meetings.

### **Academic Mentoring Program (AMP)**

AMP provides academic support for undergraduates enrolled in introductory courses known to be difficult for many students. Mentors – fellow undergraduates who have taken and done well in the course – meet weekly with a small group of students to discuss and work through questions and challenging course concepts. Mentors participate in training and meetings with AMP staff, and provide regular feedback about their group’s progress. Peer mentors also take an education course concurrent to their mentoring; see SESP 291 below. Student participants are required to commit for the full quarter, so that the groups can build a sense of community, and so that the students and mentor become comfortable with one another. The groups meet at a set time and location each week for two hours. Students are expected to attend all sessions and prepare for each session in advance. This year AMP had 342 registrations, with 27 peer mentors and 4 “senior peer mentors” leading weekly group meetings. Overall, more participants than nonparticipants earn better than C in the linked courses, especially among students with lower incoming academic rating scores.

### **SESP 291: Mentoring Learning in the STEM Disciplines**

SESP 291 is the training course for the GSW and AMP peer mentors. It is a 0.5-credit course that extends over two quarters. In 2013–2014 we enrolled 67 students in the course; students engaged in readings, reflection papers, and discussions on teaching and learning in a small-group environment.

### **Student-Organized Seminars (SOS) Leader Training Program**

This program supports undergraduates who lead student-organized seminars (SOSs). These seminars are student-created, student-led, credit-bearing courses, sponsored by a faculty member in the relevant department, and offered through the School of Communication, the School of Education and Social Policy, and the Weinberg College of Arts and Sciences. Undergraduate SOS leaders gain depth of knowledge of their seminar topic, as well as valuable leadership, organizational, and mentoring experience.

The Searle Center program focuses on developing leaders' understanding of teaching and learning concepts, ability to effectively facilitate learning for individuals and groups, and skill in using reflection and feedback for continuous improvement. This year, 15 undergraduate leaders from SESP, SoC, and WCAS took part in the program. Participant ratings are high and increased over the year; in spring, the average rating for "How well did this series aid in your development?" was 4 out of 5 (5=extremely well).

### **Peer-Led Undergraduate Study (PLUS)**

This year, the Searle Center formalized its partnership with Brad Zakarin in the Office of Residential Academic with the PLUS program. In PLUS, students meet with others in their course to study, and peer leaders (fellow students who have taken and done well in the courses) are available to provide guidance. Unlike AMP, students are not asked to pre-register, and sessions are drop-in. PLUS events are held in campus dining halls, and snacks are provided.

The program provides support in Macroeconomics (Econ 201), Microeconomics (Econ 202), Introduction to Statistics for the Social Sciences (Stat 210), Organic Chemistry (Chem 210), Intro to Psychology (Psych 110), Physics 135, the Calculus sequence courses, and the General Chemistry Sequence (Chem 101-2-3), as well as writing support through the Writing Place. PLUS had 455 student sign-ins this year. Student feedback is positive, with the average agreement to the statement "I would attend PLUS again" 4.3 on a 5-point scale.

### **Undergraduate Program for Advancing Learning (UPAL)**

In response to the University's broad concerns related to students matriculating with fewer previous academic enrichment opportunities than most of our students have, the Searle Center proposed the UPAL program and was funded in 2012 to develop and run it. The program launched in fall 2014.

UPAL is a community of students with diverse perspectives and backgrounds who support one another in striving for exceptional academic performance. With coaching from peer mentors, UPAL participants enhance their awareness of how they learn best within the Northwestern academic environment, fine-tune their academic skills, and create and carry out individual academic advancement plans. Along the way, they connect with Northwestern faculty, administrators, and staff, and build the networks that are critical to making the most of the Northwestern academic experience. Participants engage with the program for one quarter, spending an hour a week in interactive discussions and activities. In these sessions, students focus on topics such as: "smart studying" for optimal learning; interacting effectively with faculty; managing time effectively; managing academic stress; and staying focused on learning in a competitive environment.

This year we partnered with WCAS to provide support to students on the Weinberg probation list. We served primarily this population, but had a number of participants outside of this group. 90 students participated in UPAL this year, with 12 peer mentors leading groups. Most students responded very positively to UPAL; the average agreement score for the statement "Overall, UPAL benefitted me" was 4.1 on a 5-point scale.

## **NULearn**

NULearn is a series of workshops for undergraduates and led by undergraduates, designed to help participants develop insights about learning that can help them maintain academic success. Workshops are held in residence halls and other locations.

This year, 8 student leaders presented at 7 separate sessions across campus, on the following topics:

- Daily Practices for Academic Success
- Finding Your Path: Succeeding Academically at Northwestern
- Balancing Academics with the Rest of Your Life
- Engaging in the Academic Community

Approximately 35 students participated in the workshops.

## **Undergraduate Student Associates**

This year, we had had three student associates, who investigated topics in teaching and learning, and ended the year with two faculty/grad/postdoc brownbag discussion sessions on those topics: Group work and Discussion Sections. These students have also contributed to the teaching and learning resources on our website.

## **Science Research Workshop (SRW) Program**

The Science Research Workshop program prepares students for authentic science research experiences by engaging them in fall and winter workshop sessions designed to help them successfully complete a research proposal. Each session comprises two broad activities: "faculty cafés" and peer-led workshops. Faculty Cafés are weekly discussions in which faculty members share stories of how they got interested in science research; peer-led workshops train participants on components of the research process, including:

- Appropriately contacting and interviewing with Northwestern science laboratories.
- Developing a valid research project.
- Discovering strategies for funding research ideas.
- Identifying and applying key techniques in scientific writing.
- Integrating feedback from experts and peers.

This year, we had 6 mentors and 19 students participating. 16 students were funded. There were 115 students who attended at least one of our workshops.

## **Academic Resource Portal**

This year we developed the online Academic Resource Portal ([www.northwestern.edu/searle/academic-portal](http://www.northwestern.edu/searle/academic-portal)). This is a comprehensive listing of academic-support and academic-enrichment opportunities at Northwestern. The site also offers student-to-student advice on succeeding at Northwestern, advice on study and learning strategies, and more. The site had more than 3,000 page views during the 2014-15 year.

**One-to-One Coaching pilot program**

In winter and spring of this year, we piloted a one-to-one peer coaching program. Ten students and ten peer coaches took part. Coaches supported students primarily with general studying and learning issues, such as time management, motivation, organization, and referrals to campus resources. Initial feedback from participants is positive, and we will continue with a somewhat larger pilot in the 2015-16 academic year.

**Academic Support Survey**

This spring, we ran an academic-support survey to gauge use of existing resources and unmet needs. Approximately 500 undergraduates responded. We are in the process of analyzing the data and will share it with campus groups in the fall.

## II. RESEARCH AND EVALUATION PROJECTS

The Center is involved in a variety of research and evaluation projects on teaching and learning in higher and professional education. While some of the projects are undertaken independently by the Searle Center, the majority involve collaborations with faculty, often across multiple departments. Activities in this area include conducting research studies, evaluating programs and assisting faculty with writing of the pedagogical components of grant proposals to funders such as the National Science Foundation (NSF) and the National Institutes of Health (NIH).

### Ongoing Research Projects in Faculty/Instructor Development & Learning

#### *Course and Teacher Evaluation Council (CTEC) Pilot Study*

In collaboration with the Office of the Registrar and the University Assessment and Reaccreditation Council, the Searle Center piloted a small study in which we added questions about learning outcomes to the university CTECs. We ran a series of correlations to determine how each of the new learning objectives questions related to the five core CTEC questions. We used the numerical data from three quarters: Fall 2012, Winter 2013, Spring 2013, Winter 2014, and Spring 2014. While we need to increase our sample size, early indications may suggest that making students aware of learning objectives, and assessing outcomes accurately are strongly correlated with high instructor and course ratings. We increased the sample size in 2014-2015.

We presented this data as a poster session at the Learning, Teaching, and Assessment Forum in Fall 2014. This pilot will expand in 2014-2015 and will continue to do so in 2015-2016.

*Digital Humanities Faculty Workshop Evaluation.* The Center worked with WCAS again this year to evaluate the Digital Humanities Summer Faculty Workshop. All six faculty participants were surveyed and interviewed on their Workshop experiences, and reports shared with the Weinberg Associate Dean's office to contribute to program planning.

#### *Enhancing Critical Thinking in a Large Religious Studies Lecture Course*

The center collaborated with Sarah Jacoby in the department of religious studies to implement and analyze different pedagogical strategies and assessments for promoting critical thinking in a large religious studies course. Our results indicate that students felt strongly that the methods implemented in this study were conducive to enhancing their critical thinking including transforming the traditional lecture into an engaged lecture, replete with interrogative and interactive elements, and exchanging exam-based assessments for weekly writing assignments. This project has been submitted to *College Teaching* and is currently under review.

#### *Enhancing Critical Thinking in STEM Disciplines: A Faculty Development Model*

(NSF: Course, Curriculum and Laboratory Improvement (CCLI) award \$227,000 over 3 years). This project involved a collaboration between the Searle Center and the City Colleges of Chicago (CCC) to design, pilot and study a Science, Technology, Engineering, and Mathematics (STEM) faculty development program focused on



improving higher order learning outcomes of STEM students by introducing activities to promote critical thinking and developing course specific assessments of critical thinking. Sixteen STEM faculty – 9 faculty from CCC and 7 from Northwestern completed the program.

Seven CCC faculty submitted data on the results of the course specific assessments of critical thinking that they conducted. For 5 of the 7 faculty, gains from the semester where they implemented critical thinking activities were larger than gains made during the baseline phase of the experiment when they did not focus on critical thinking. Although CCC classes made larger gains in semesters when critical thinking activities were introduced, these gains were not reflected on the Critical Thinking Assessment Test (CAT) data. Three Northwestern faculty made larger gains in total score on the CAT test during the quarter that they implemented critical thinking activities. In addition, the three faculty made larger gains on questions that were directly related to the critical thinking skills that they had focused on in their classroom critical thinking activities.

We are currently analyzing data on changes in faculty conceptions of critical thinking, and assessment, and conducting an analysis of syllabi to see if they reflect any changes related to assessment or teaching of critical thinking. We have submitted one paper to the *Journal of Faculty Development* which is currently under review.

### ***Palestinian Faculty Development Program***

The Center has partnered with three universities (An Najah University, Palestinian Polytechnical University (PPU), Palestinian Technical University Khadoorie (PTUK) in the West Bank over the past 4 years as part of a USAID/Open Society funded program to increase the use of student-centered teaching in these particular universities and across the West Bank more broadly. All three universities have established teaching centers and are using a train-the-trainer approach to develop a cadre of faculty who deliver workshops on teaching and learning to faculty. The Searle Center has designed, implemented and evaluated a number of workshops for trainers and university administrators. In 2014, the Searle Center worked with Dr Zaher Nazal from An-Najah University to conduct an impact analysis for their Center for Excellence in Learning and Teaching using a counter-factual analytical design and found a substantial impact of the center on teaching practice and university policies to support student centered teaching. Greg Light and Denise Drane are currently co-authoring a monograph about the project for USAID.

### ***Searle Fellows Research and Evaluation***

Research over the past 8 years has focused on participants' conceptions of teaching, learning, research and mentoring and on how faculty understand relevance in their teaching. This year, we have been examining the long-term impact of the program, by asking faculty about the changes they may have made in their teaching since their time in the program. We will be presenting the results of this study at the Professional Organizational Development Network in Fall 2015.



### ***Ongoing Research Projects in Graduate Education***

#### ***Center for Integration of Research Teaching and Learning Network (CIRTL Network) (National Science Foundation \$142,800 over 3 years)***

Over the past 3 years, the Searle Center has collaborated with the Graduate School and 23 research universities across the nation to promote professional development of graduate students and postdocs in STEM teaching and learning. The Center plays roles in both program development, delivery and evaluation. Currently the Center is conducting an in depth evaluation of the first two cohorts of participants in Teaching Certificate Program to assess the extent to which specific CIRTL learning outcomes in the areas of “teaching as research”, “evidence-based teaching”, “learning communities” and “learning through diversity” have been achieved. A manuscript evaluating the Mentored Discussions of Teaching program has been submitted to *Innovative Higher Education*.

#### ***National Institutes of Health: Mentoring for Success: Developing Fundamental Skills for Biomedical Research***

This program aims to increase the number of students from underrepresented backgrounds who are admitted to and retained in doctoral programs in the biological and life sciences at Northwestern. The Center continues to support both formative and summative evaluation of the program by designing surveys and conducting focus groups. Program directors have been very responsive to participant feedback and have made a major changes to the program over the years on the basis of evaluation data.

#### ***National Institutes of Health: T32 Training Grants***

The Center is currently evaluates doctoral and postdoctoral training grant programs in Biophysics, Biotechnology, Endocrinology, Human Cognition, Information Storage, Mechanisms of Aging and Dementia (MAD), Motor Control, Movement and Rehabilitation Sciences, Pathophysiology and Rehabilitation of Neural Dysfunction and Reproductive Medicine (K-12 BIRWCH). In addition the Center supported competing renewals for Endocrinology and Molecular Biophysics, and new submission for Jointly Sponsored Ruth L. Kirschstein National Research Service Award Institutional Pre-doctoral Training Program in the Neurosciences.

#### ***Northwestern University-Patient-centered Intervention and Engagement Training K12 Faculty Scholars Training Program (NU-PATIENT)***

This Agency for Healthcare Research and Quality (AHRQ) funded NU-PATIENT K12 program is designed to support the early research career development of junior faculty who will be engaged in patient-centered outcomes and comparative effectiveness research. The Searle Center has consulted on evaluation of trainee competences and is currently developing annual survey and focus group protocols.

#### ***Preparing Graduate Students in History for Teaching (Teagle Foundation \$85,000 over 2 years)***

The Searle Center collaborated with the Graduate School on a program aimed at improving the training of graduate students in History as teachers of undergraduates, providing consultation on program development and evaluating the program. The mixed-method evaluation was comprised of surveys, focus groups and observations of teaching. Overall, participants rated their experience with the program as positive. Most

participants felt that the experience was worth the time and effort and that they came away with a great deal of knowledge that will help them as they move forward with their teaching. The evaluation provided evidence that the program was effective in increasing fellows' knowledge of teaching and learning theory and practice and in creating a teaching-centered community within the History Department.

## **Ongoing Projects in Undergraduate Education**

### ***Academic Mentor Program (AMP) Evaluation***

AMP is a small-group, peer-led study & review program running in “gateway” courses in Economics, Statistics, Physics, and Chemistry. Participating students tend to have lower SAT-math scores and lower Admissions academic ratings than the student population at large. We evaluate the program regularly through student surveys and examination of student grades in the linked courses. Data suggest that particularly for students with lower Admissions academic ratings and lower SAT-math scores, AMP participants fare better in the courses than do non-participants, with more participants earning better than a C. We also measure change over the quarter of participants and nonparticipants in approach to study and related factors; participants tend to fare better than nonparticipants in terms of the amount of “unrelated memorization” (studying without understanding) they engage in, as well as the amount of productive self-regulating study behavior they engage in. (Differences are statistically significant.) Student satisfaction ratings are uniformly high, with average scores for items such as “AMP helped me understand the course material better,” “I benefitted academically,” and “I would participate in AMP again” above 4 on a 5-point scale.

### ***An Interactive Steel Connection Teaching Tool – A Virtual Structure***

This project is a collaboration between Northwestern University and Minnesota State University lead by Prof Karen Chou from the department of Civil and Environmental Engineering at Northwestern. To enhance students' understanding of steel connections, Prof Chou has created an innovative, web-based interactive version of a steel sculpture. The virtual sculpture shows the close up view of each connection with description of how it may be used, potential failure modes, sample calculations, and field examples. The Searle Center worked with Prof Chou to develop surveys to gather data on students' experience interacting with the tool and to develop two ‘hands on’ construction assessment tasks to compare the performance of students who had access to the virtual sculpture with the performance of students who had access only to the course textbook. While there was no difference between the groups on the first activity there was a substantial difference in performance on the second activity, with the majority of pairs who had interacted with the sculpture forming correct connections and the majority of paired who had interacted with the textbook forming incorrect connections.

### ***Gateway Science Workshop (GSW) Program Impact***

This project, investigating the impact of a small-group learning program on performance and retention of undergraduates in STEM disciplines, began in 2001 and was originally funded by a 6-year grant from the Andrew W. Mellon Foundation. The program and program evaluation continues through funding from Northwestern and analysis of data on course grades and retention continues. We have continued to build a database, now pooling data from more than 12 years. These pooled analyses revealed an overall positive impact of the program on course grades and retention, with larger retention effect sizes

seen for minority students in several courses. The book *Making Scientists*, which draws on the GSW experience was published in 2012 by Harvard Press, and a paper presenting the 10-year results has been published in the *Journal of Educational Research and Evaluation*.

#### ***Howard Hughes Medical Institute (HHMI) Grant***

(Howard Hughes Medical Institute grant SP0008821 \$2,000,000 over 4 years.) This project is a collaboration between the Howard Hughes Medical Institute and Northwestern University to undertake a major reform of its undergraduate biological science training program by emphasizing inquiry-based learning and by introducing students early on to the compelling realities of laboratory investigation, providing a research-informed context for scientific learning from the first months of matriculation through graduation. The Searle Center is collaborating with biology faculty to prepare manuscripts for publication. One manuscript on inquiry based laboratories has been submitted to the *Journal of College Science Teaching*. Other manuscripts on the NuBioscientist Program, the NuBioscientist Mentoring Training Program and the Bioexcel program are currently being prepared.

#### ***Mellon-Mays Undergraduate Fellowship Program Evaluation***

The Searle Center is managing the evaluation of this program, for which Northwestern was awarded \$500,000 over 5 years. The program aims to increase diversity in the faculty ranks in the humanities and social sciences. The goals of this primarily qualitative evaluation are to better understand students' experiences in the program, including their development as academic researchers, their relationships with faculty mentors, and their general satisfaction with the program structure and policies. We have provided findings from the first year of the evaluation to Program directors; recommendations based on these findings have contributed to continued improvement of the Program. Evaluation is ongoing.

#### ***Student Conceptions of International Experience (SCIE)***

To better understand students' international experience through study abroad, the Buffett Center for International and Comparative Studies and the Searle Center for Teaching Excellence launched a collaborative project in the summer of 2007 called the Student Conceptions of International Experience (SCIE). Based on results of a phenomenographic study of undergraduate students' conceptions of international experience, a 70 item survey instrument to assess students' conceptions of and approaches to international experience was developed. The new 45 item survey was piloted with 646 students from 7 US universities in 2013. A latent profile analysis conducted by our collaborator Dr Fred Bryant from Loyola University found that the new survey has 3 valid and reliable subscales for 'interacting', 'participating' and 'embracing' with a total of 16 questions. Survey questions for the 'observing' subscale were not reliable. The new 16 items survey will be piloted in the 2015-16 academic year together with some new questions for the 'observing' subscale. A number of manuscripts on the project are underway.

### ***Undergraduate Program for Advancing Learning***

The Undergraduate Program for Advancing Learning (UPAL) finished its first pilot year in spring 2015. Starting in winter 2015, UPAL served primarily students in the WCAS probation pool. Evaluation has included student surveys of both participants and non-participants gauging both student experience/satisfaction and change in students' approach to studying and learning. Satisfaction survey questions average 3.9 on a 5-point scale. Initial survey results (based on a small number of students) also suggest that participants may fare better than comparable nonparticipants in terms of their use of help-seeking and time management strategies, as well as making use of peers for academic support, and regulating their own studying. The Searle Center will work with WCAS in 2015-16 to develop additional outcome measures.

### **Grant Writing Assistance**

The Center has assisted faculty with the preparation of proposals to external funders such as NSF and NIH. To enhance the grant writing capacity of Northwestern faculty, the Center continues to offer yearly workshops on how to write the pedagogical and evaluation sections of grants.

During the 2014-15 academic year, the Searle Center assisted faculty with the following proposals

- 5 NSF EARLY career awards
- 2 NSF NRT
- 1 NSF Center grant
- 1 NSF RET
- 5 Other NSF awards
- 2 NIH T32 renewals
- 1 NIH T32 new submission
- 1 Other NIH award
- 1 Robert Wood Johnson Foundation
- 1 Sloan Foundation

### **Focus Groups:**

The Searle Center conducted additional focus groups:

- Two focus groups were conducted for Northwestern's Coordinated Service Center (CSC), which were designed to capture the experience of students who participated in Todd Murphey's blended Engineering Analysis 2 course (which combined both in-class and online/MOOC resources).

### III. SERVICES

The Searle Center has continued to develop the teaching and learning services it provides for faculty and graduate-student instructors across the University.

#### SERVICES FOR FACULTY & INSTRUCTORS

##### End-of-Term Focus Groups

Since the university does not administer Course and Teacher Evaluations to courses with fewer than 5 students, instructors may request a CTEC-style focus group from the Searle Center. A trained staff member will pose questions drawn from the university CTEC and from Searle's Small Group Analysis questionnaire, noting points of agreement and disagreement. After grades have been submitted, the staff member will share the student responses with the instructor. This year, we completed 5 end-of-term-focus groups.

##### Individual Consultations

The Center provides individual consultations to faculty and other instructors at the University, from Evanston, Chicago and NU-Q campuses. These are often carried out in conjunction with either an SGA or structured observation, or in response to end-of-term course evaluations. They can also be stand-alone or ongoing meetings to engage in a variety of teaching, curriculum planning, and grant writing activities, for individuals or in campus units. Searle Center senior staff worked individually with approximately 150 faculty members this year, consulting on issues of teaching, assessment, and grant writing.

##### Innovative Grants for Teaching

The grants are designed to support faculty, staff, postdocs and graduate students who wish to experiment with new ways to help students learn. This year, we provided innovative grants to Sarah Jacoby, Religious Studies, WCAS, to help her assess critical thinking in her large lecture course (an article detailing the findings is currently under review at *College Teaching*.) We also awarded a grant to Joshua Kleinman (Law) to develop the conceptual understanding of students in a jurisprudence course.

##### Small Group Analysis (SGA)

During a Small group analysis, Center staff and trained graduate-student Teaching Consultants (TCs) conduct a structured focus group with students in a class, and provide instructors with detailed and candid feedback during a follow-up meeting. In 2014-2015, we conducted 64 SGAs for faculty and graduate instructors. SGAs conducted in 2014-2015: 22 Fall, 2014; 25 Winter, 2015; 15 Spring, 2015; 2 Summer, 2015.

##### Structured Observations (SOs)

In structured observations, Center staff and Graduate Teaching Fellows observe an instructor's teaching, taking detailed notes about key areas, including student engagement, critical thinking, and effectiveness of teaching approaches. Includes follow up consultation; sometimes combined with SGA. In 2014-2015 we conducted 26 structured observations for faculty and 23 for graduate students and post docs.

## SERVICES TO THE UNIVERSITY AND BROADER COMMUNITY

### **Robert E. Menges Library**

The Center continues to add to its holdings (books, articles, journals, and DVD/videos), providing faculty/staff and graduate students with easy access to the rich literature on teaching and learning. We have continued to donate materials to the University Archives (including video recordings of University Teaching Series events, foundational materials, professional correspondence, etc.), so that they may be archived properly. In addition, we have continued to use substantial new technologies to the library (cameras, interactive white board, and other specialized equipment), to communicate with our stakeholders and collaborators and to model effective integration of teaching and technology. We now have over 1000 holdings.

[northwestern.edu/searle/services\\_and\\_resources/center\\_library.html](http://northwestern.edu/searle/services_and_resources/center_library.html).

### **Twitter Account**

“The Center’s twitter account (@searlelearning) promotes Center programs and events, disseminates news about our work, and links to compelling articles on teaching and learning in the media and scholarly publications. The Center tweets an average of 2 times a week and has garnered 709 followers. The Twitter account can be found at <https://twitter.com/searlelearning>

### **Website**

This year, we added a new resource on our website: the Undergraduate Academic Resource Portal. The Portal was developed in response to campus wide calls for a central resource where undergraduates can find information on academic support across the University. The site had more than 3,000 page views during the 2014-15 year. View the portal at <http://www.northwestern.edu/searle/resources/undergraduate-academic-resources/index.html>



## IV. DISSEMINATION

### ACADEMIC PUBLICATIONS & PRESENTATIONS

#### Publications September 2014-August 2015

Case, J. & Light, G. (2014). Framing qualitative methods in engineering education research: Established and emerging methodologies. In *The Cambridge Handbook of Engineering Education Research*, ed. Johri, A. & Olds, B. Cambridge University Press, Cambridge UK.

Drane, D., Micari, M., & Light, G. (2014). Students as teachers: Effectiveness of a peer-led STEM learning program over 10 years.. *Educational Research and Evaluation*: DOI: 10.1080/13803611.2014.895388.

Light, G., & Calkins, S. (2015). The experience of academic learning: uneven conceptions of learning across research and teaching. *Higher Education*: Volume 69, Issue 3 (2015), Page 345-359. (DOI) 10.1007/s10734-014-9779-0

Micari, M., & Pazos, P. (2014). Worrying about what others think: A social-comparison concern intervention in small learning groups. *Active Learning in Higher Education*: doi: 10.1177/1469787414544874 .

#### In Press

Baiduc RR, Jungwha L, Dhar, S. (In Press). Toward a Test Battery for Differential Categorization of Age-Related Hearing Loss. *Journal of Indian Speech Language & Hearing Association*.

Calkins, S., & Light, G. (In Press). Conceptions of mentoring in formalized faculty relationships.

Chapter in *The Mentoring Continuum: From Graduate School Through Tenure*, Syracuse University Press.

Micari, M., & Pazos, P. (In Press). Fitting in and feeling good: The relationships among peer alignment, faculty connectedness, and self-efficacy in undergraduate satisfaction with engineering. *European Journal of Engineering Education*.

#### Under Review

Baiduc RR, Linsenmeier RA, Ruggeri N. (Under Review). Conversations About Teaching: An Introductory Teaching Development Program for Future STEM Faculty.

Calkins, S. & Drane, D. (Under Review). Leveraging Critical Thinking to Promote Conceptual Change in Faculty. Submitted to *Journal of Faculty Development*.



Jacoby, S. & Calkins, S. (Under Review). *Mixing Oil and Vinegar: Student Perceptions of Effective Pedagogy for Enhancing Critical Thinking in a Large Lecture Course*. Submitted to *College Teaching*.

### **Invited Talks and Presentations (External to Northwestern)**

Calkins, S. (January, 2015). *The Importance of Critical Thinking*. Invited Keynote address, Oakton Community College Faculty and Staff Retreat. Lisle, IL.

Calkins, S. (November, 2014). *Engaging Students Through Active Learning Strategies*. Invited workshop, Lake Forest College. Lake Forest, IL.

Drane, D., Calkins, S. Light, G. (October, 2014.) *Leveraging Critical Thinking to Promote Conceptual Change in Faculty*, Professional Organizational Development (POD) Annual Meeting. Dallas, TX

French, A., & Maslanka, E. (2015, March). *Comparing approaches to peer-led academic support: Two programs at Northwestern university*. Presentation at Chicago Symposium Series, Chicago, IL.

Light, G. (May, 2015). *Peer review of teaching*. Workshop, An-Najah National University, Nablus, West Bank.

Light, G. (March 2015). *Reflections from the Roadside: Principles for Teaching in Higher Education*. Keynote for I FORUM 2015, STHEM BRAZIL: Encontro Sobre Inovacao Academica e Aprendizagem Ativa. UNITALO (Centro Universitario Italo Brasileiro), Sao Paulo, Brazil.

Light, G. (December, 2014). *Evidence-Based Innovation: Using Data & Design to Transform Teaching*: Keynote talk given at the National Conference of Learning and Teaching, Palestine Technical University Kadoorie, Tulkarm, West Bank.

Light, G. (December, 2014). *Enhancing Critical Thinking through your Teaching*. Workshop at Hebron University, Hebron, West Bank.

Lo, S. Drane, D. L., Baiduc, R. R., Swarat, S. L. Swarat, Light, G. J. *Sustainable Changes in Instructional Practices from Faculty Development: Relationships with Changes in Conceptions and Approaches to Teaching*. Roundtable presented at the American Educational Research Association, April 2015 Chicago, IL.

Micari, M., Van Winkle, Z., & Pazos, P. (April 2015). *Among Friends: The Role of Academic Diversity in Individual Achievement Within a Small-Group Learning Environment*. Paper presented at the American Educational Research Association conference, Chicago, IL.

Ruggeri, N. & Calkins, S. (October 2014). *Helping Instructors Leverage Meaningful Learning: Strategies for Critical Thinking*, Professional Organizational Development (POD). Dallas, TX.

Ruggeri, N., Drane, D., & Light, G. (May 2015). *Advancing & Sustaining Academic Development in Palestinian Universities*. Four-Day Workshop. Ramallah, West Bank.

Ruggeri, N., Drane, D., & Light, G. (May 2015). *Models of Academic Development*. Workshop, Ramallah, West Bank.

## Invited Talks and Presentations at Northwestern

Calkins, S. (January, 2015). Invited Panel Participant. *Forum about Digital/Online Projects to Enhance Learning at Northwestern*. Sponsored by the Faculty Distance Learning Workgroup and the Office of the Provost.

Drane, D. (October 2014). Invited Speaker. Seminar in Professional Development for Doctoral Students. Department of Communication Sciences and Disorders at Northwestern.

Harris, M. (February 2015). Invited speaker. Turkish Culture. The International Office Workshop.

Harris, M. (August 2015). Invited Panel Participant. *Teaching and working with NU students*. The International Summer Institute (ISI) Integration Issues Conference.

Linsenmeier, R., Ruggeri, N., and Nieman, L.E., (November 2014). *Mentored Discussions of Teaching*. Poster presented at the second annual Learning, Teaching and Assessment Forum.

Micari, M., Zakarin, B. & Bode, M. (May 2015). "Beyond the Blackboard." Annual Best Practices Forum.

Phillips, A.L. , Calkins, S., and Harris, M., (November 2014). *Using CTECs to enhance learning and teaching at Northwestern*. Poster presented at the 2nd Annual Learning, Teaching and Assessment Forum.

## UNIVERSITY CONTRIBUTIONS/OUTREACH Committee and Board Work

### *Inside Northwestern*

- Assessment and Accreditation Council (Susanna Calkins, Greg Light)
- Assessment Forum Planning Subcommittee (Susanna Calkins, chair; Muveddet Harris)
- Classroom Committee (Susanna Calkins)
- Coordinated Service Center (CSC) (Susanna Calkins)
- CTEC Committee (Greg Light; Susanna Calkins, redesign subcommittee)

- Educational Technologies Advisory Committee (Greg Light, chair; Susanna Calkins, Learning Outcomes subcommittee)
- First-Year Experience Advisory Board. (Andrew French)
- Mellon Mays Undergraduate Fellowship review committee – (Marina Micari)
- Prosthetic Orthotic Center Education Program (NUPOC) Advisory Board (Susanna Calkins)
- University Diversity Council (Greg Light (Co-Chair: Academics/ Education Working Group; Marina Micari, subcommittee)
- Undergraduate Research Assistant program Review Committee (Greg Light)
- Supporting Transition of Admitted Students Committee – Greg Light, Marina Micari (subcommittee chair), Andy French, Luke Flores, Erica Maslanka
- Learning management systems administrators committee (Muveddet Harris)
- Teagle Foundation Grant Steering Committee (Denise Drane, Nancy Ruggeri)
- Women’s Center Advisory Board (Nancy Ruggeri)
- University Diversity Council - Academic subcommittee Transitions Council Office of Undergraduate Research advisory board SES advisory council URAP committee Mellon Mays Undergraduate Fellowship committee (Marina Micari)

### *Outside Northwestern*

- Committee on Institutional Cooperation (CIC) Teaching Center Directors group (Susanna Calkins, Greg Light, Nancy Ruggeri)
- Consultant/Advisor, Association of Palestinian Academic Developers (Greg Light)
- Faculty Associate, Initiative for the Development of Academic Innovation (Greg Light)
- LASPAU, Academic and Professional Programs for the Americas, Harvard University (Greg Light)
- National Advisory Board, NSF (National Dissemination Grant): *Critical Thinking Assessment (CAT) Tool* (PI: Barry Stein, Tennessee Technological University) (Greg Light)
- Alumni Ambassador, Institute of Education, University College, London (UCL) (Greg Light)

### *Teaching*

- Calkins, S. MSHE 467– History and Philosophy of Higher Education (SESP)
- Calkins, S. MSHE 405-Learning and Teaching in Higher Education (SESP)
- Harris, M. MED INF 403-DL – Introduction to Medical Informatics [Fall, Spring] (SCS -MMI)
- Harris, M. MED INF 498-DL – Capstone Project [Fall, Winter, and Summer] (SCS -MMI)
- Light, G. MSHE 405 – Learning and Teaching in Higher Education (SESP)
- Maslanka, E. CMM 121 - Introduction to Public Speaking (College of Lake County)
- Micari, M. SESP 291 – Undergraduate Mentoring (SESP) (GSW Facilitator training course)
- Micari, M. MSLOC SESP 291 Capstone Advising (SESP)

### **Reviewing**

- *Active Learning in Higher Education* (Marina Micari)
- *American Journal of Evaluation* (Marina Micari)
- *Education Research Review* (Greg Light)
- *Higher Education* (Greg Light)
- *International Journal of Science Education* (Greg Light, Marina Micari)
- *Journal of Engineering Education* (Denise Drane, Greg Light)
- *Journal of Women and Minorities in Science and Education* (Marina Micari)
- *Journal of AIDS Clinical Research and STDs* (Rachael Baiduc)
- *Nanotechnology Reviews* (Denise Drane)
- *Pediatrics* (Denise Drane)
- Routledge Press (Susanna Calkins)

## **PROFESSIONAL DEVELOPMENT ACTIVITIES**

### **External**

- Baiduc, R. R. (October 2014). Attended CIRTTL Meeting (Iowa)
- Calkins, S. (August 2015). Attended Annual Learning Spaces Forum. University of Minnesota (Minn)
- French, A. (April 2015) Attended AERA in Chicago
- Micari, M. (Jan 2015). One-day Management training through Learning & Org Development POD Organization Development Institute: Leading & Participating in Campus-Level Change

### **Internal**

- Searle Center annual all-staff retreat (April 2015) Facilitated by Cynthia S. Aaronson.
- Baiduc, R. (April 2015). Short webinar/course: Increasing web survey response rates: what works? (March 2015) CIRTTL Forum.
- Harris, M. (April 2015 and May 2015) Managing Your Career Workshop.
- Maslanka, E. (November 2014). Writing for the Web.
- Maslanka, E.. (November 2014) CLSS Training Registrar's Office
- Maslanka, E. (December 2014). Class Planner Pilot Participant Training. Registrar's Office
- Maslanka, E. (December 2014). Social Media Summit, University Relations.
- Maslanka, E., D. Drane (February 2015) One Book Northwestern - Workshop with Claude Steele
- Maslanka, E.. (April 2015). SES Training
- Micari, M. Logistic regression online class

## V. PEOPLE

### SEARLE CENTER STAFF 2014-2015

#### Principal Staff

- Oluremi Akinyemi, Project Coordinator
- Rachael Rebecca Baiduc, Research Associate
- Susanna Calkins, Director, Faculty Programs
- Denise Drane, Director, Research and Evaluation
- Christine Simonian Bean, Graduate Assistant\*
- Andrew French, Program Coordinator\*\*
- Luke Flores - Senior Associate: SRW, BioExcel & NU BioScientist programs
- David Molina, Graduate Assistant\*
- Muveddet Harris, Program Associate
- Greg Light, Director
- Stanley Lo - Senior Associate: STEM projects\*\*
- Erica Maslanka, Program Coordinator
- Marina Micari, Director, Undergraduate Programs
- Stephanie Walaszek, Program Associate\*
- Theresa Pfister, Program Associate\*\*
- Dreana Rubel, Center Manager
- Nancy Ruggeri, Director, Graduate and Post-Doc Programs

*\*Joined during 2014–2015*

*\*\* Left during 2014–2015*

#### Graduate Assistants

- David Molina
- Christine Simonian Bean
- Faye Gleisser (filled in during Christine's maternity leave)

#### Work-Study Students

- Liliana Bonilla\*\*
- Cindy Chen\*\*
- Ayo Olagbegi
- Nicholas Ahern\*
- Kevin Russell\*
- Xavier Kirkham\*

#### Interns

- Todd Linton
- David Sugg
- Derek Thurber

### Advisory Board

- James Edward Colgate, Professor, Mechanical Engineering, McCormick School of Engineering & Applied Science
- Robert Linsenmeier, Professor, Neurobiology & Physiology, Weinberg College of Arts & Science
- Franziska Lys, Associate Professor, German, Weinberg College of Arts & Sciences
- Lawrence Pinto, Professor, Neurobiology & Physiology, Feinberg School of Medicine
- Chris Riesbeck, Associate Professor, Electrical Engineering & Computer Science, McCormick School of Engineering & Applied Science

### Searle Fellows 2014-2015

- Brenna Dee Argall, Departments of EECS and Physical Medicine and Rehabilitation  
Robert R. McCormick School of Engineering and Applied Science  
Feinberg School of Medicine  
Mentor: Todd Murphey
- Danny Bega, Department of Neurology  
Feinberg School of Medicine  
Mentor: Cindy Zadikoff
- Eve Bloomgarden, Endocrine Division (Did not complete the program)  
Feinberg School of Medicine  
Mentor: Jeff Barsuk
- Aymar Jean Christian, Media, Technology and Society Program  
School of Communication  
Mentor: James Webster
- Marcus Doshi, Theatre  
School of Communication  
Mentor: Dassia Posner
- Danna Freedman, Department of Chemistry  
Judd A. and Marjorie Weinberg College of Arts and Sciences  
Mentor: Tom O'Halloran
- Claudia Haase, School of Education and Social Policy  
Mentor: Dan McAdams
- Joshua Kleinfeld, School of Law  
Mentor: Matthew Spitzer
- Karen Mangold, Department of Pediatrics  
Feinberg School of Medicine  
Mentor: Rick McGee
- Jacqueline D. Neal, Physical Medicine and Rehabilitation  
Feinberg School of Medicine  
Mentor: Elliott Roth

- Andrew J. Sauer, Division of Cardiology  
Feinberg School of Medicine  
Mentor: Gary Martin
- Evan Alexander Scott, Biomedical Engineering  
Mentor: Guillermo Ameer
- Toru Shiozaki, Department of Chemistry  
Judd A. and Marjorie Weinberg College of Arts and Sciences  
Mentor: Regan Thomson
- Ned Smith, Management & Organizations  
Kellogg School of Management  
Mentor: Brian Uzzi
- Nathaniel P. Stern, Department of Physics and Astronomy  
Judd A. and Marjorie Weinberg College of Arts and Sciences  
Mentor: David Meyer
- Patricia Vassallo, Division of Cardiology  
Feinberg School of Medicine  
Mentor: Sarah Sutton
- Haoqi Zhang, Biomedical Engineering  
Robert R. McCormick School of Engineering and Applied Science  
Mentor: Bryan Pardo

#### **Teaching Consultants, 2014-15**

- Stephanie Brehm, Religious Studies
- Charles Collett, Physics and Astronomy
- Tracy Dobie, Learning Sciences
- Kate Dugan, Religious Studies
- Alyssa Haynes, Chemistry
- Henke, Biological Sciences
- Lindsey Madison, Chemistry
- David Molina, Communication Studies: Rhetoric and Public Culture
- Cora Palfy, Music Studies
- Sarah Roth, English
- Matilda Stubbs, Anthropology
- Emil Temnyalov, Economics

#### **2014-2015 Graduate Teaching Mentors (GTM)**

- Laura Dingeldein, Religious Studies
- Alyssa Haynes, Chemistry
- Natalie Gruenke, Chemistry
- Esther Liu, Communication Studies:
- Matthew June, History
- Cora Palfy, Music Studies



### **2014 NTAC Workshop Leaders**

- Christy Simonian Bean, Theater
- Melanie Butler, Chemistry
- Charles Collett, Physics
- Ashlee Cummings, French and Italian
- Tracy Dobie, Learning Sciences
- Yana Gallen, Economics
- Matthew Henke, Interdepartmental Biological Sciences
- Assata Kokayi, African American Studies
- Pamela Krayenbuhl, Radio, Television, & Film
- Aditi Malik, Political Science
- Stephanie Mohr, Writing for Screen and Stage
- Cora Palfy, Music Studies
- Tom Purcell, Chemistry
- Keith Rathbone, History
- Paul Reinhart, Communication Sciences and Disorders
- Matilda Stubbs, Anthropology

### **2014-2015 Graduate Teaching Fellows (GTF)**

- Miguel Bessa, Mechanical Engineering
- Janet Bourne, Music Studies
- Kyle Burke, History
- Kate Dugan, Religious Studies
- Gozde Erdeniz, Political Science
- Faye Gleisser, Art History
- Sarah Roth, English

### **2014-2015 Graduate Teaching Certification Program (TCP) participants**

- Kelly Becker, Sociology
- Ian Blechschmidt, Communication Studies: Rhetoric and Public Culture
- Tristan Bradshaw; Political Science
- Stephanie Brehm, Religious Studies
- Pradeep Bugga, Chemistry
- Antawan Byrd, Art History
- Kirsten Carithers, Music Studies/Musicology
- Elaine Cheung, Psychology
- Drew Cingel, Communication Studies: Media, Technology, and Society
- Charles Collett, Physics and Astronomy
- Philip Egger, Mathematics
- Maya Fein, Stage Design
- Eleonora Forte, Microbiology-Immunology
- Renee French, Earth and Planetary Sciences

- Meaghan Fritz, English
- Rachel Hawe, Biomedical Engineering
- Amanda Herrera, Psychology
- Reem Hilu, RTVF: Screen Cultures
- Lucie Huet, Mechanical Engineering
- Nicholas Jackson, Chemistry
- Amanda Kleintop, History
- Iwona Konieczna, Surgery
- Grace Larson, Psychology
- Sang Eun Lee, Communication Studies
- Carli Leone, English
- Polina Maksimovich, Slavic Languages and Literatures
- Aditi Malik, Political Science
- Maria Dolores Martin de Saavedra, Physiology
- Leigh Meredith, Communication Studies: Rhetoric and Public Culture
- Elizabeth Miller, Materials Science and Engineering
- Almita Miranda, Anthropology
- Nicole Najor, Pathology/Cell and Molecular Biology
- Olufolahan Olowoyeye, Comparative Literary Studies
- Aaron Oppenheimer, Chemical and Biological Engineering
- Mona Oraby, Political Science
- Ashley Pazy Puente, Materials Science and Engineering
- Keith Rathbone, History
- Megan Reissman, Mechanical Engineering
- Timothy Reissman, Biomedical Engineering & Physical Medicine and Rehabilitation
- Jennifer Schoborg, Chemical and Biological Engineering
- Ariel Schwartz, Religious Studies
- Kimberly Seibel, Anthropology
- Narut Sereewattanawoot, Engineering Sciences and Applied Mathematics
- Andrew Smith, Physical Therapy and Human Movement Sciences
- Eunhye Song, Industrial Engineering and Management Sciences
- Kantara Souffrant, Performance Studies
- Seth Swanner, English
- Sarah Taylor, Anthropology/Public Health
- Sam Tenorio, African American Studies
- Sebastian Thompson, Biomedical Engineering
- Ismail Omer, Civil Engineering
- Ali Zockaie Kheiraie, Civil Engineering

## VI. APPENDIX

### FACULTY PROGRAMS DATA

Overall, the workshop benefited me. (1 Strongly Disagree – 5 Strongly Agree)

<b>Workshop Title</b>	<b>Date</b>	<b>Attendance</b>	<b>Average Rating</b>
<b>Online Faculty Workshop: Developing Effective Learning Objectives</b>	<b>09.04.14</b>	<b>14</b>	<b>4</b>
<b>Connecting with the Crowd: Lecturing for Learning in Small and Large Classes</b>	<b>10.16.14</b>	<b>8</b>	<b>4.4</b>
<b>Assessing and Improving Teamwork in Group Projects</b>	<b>10.17.14</b>	<b>15</b>	
<b>Using rubrics in Canvas to enhance learning and teaching</b>	<b>10.20.14</b>	<b>6</b>	<b>3.7</b>
<b>Focus on Assessment: Beyond CTECs: Developing Meaningful Course Evaluation</b>	<b>11.11.14</b>	<b>7</b>	<b>5</b>
<b>Focus on Assessment: Grading with Intent - Designing Effective Assessments to Improve Student Learning</b>	<b>01.23.15</b>	<b>7</b>	<b>4.8</b>
<b>Writing to Learn: Developing and Evaluating Writing Assignments within the Disciplines</b>	<b>01.30.15</b>	<b>8</b>	<b>4.2</b>
<b>How Am I Supposed to Teach My Course with All These Requests for Exceptions?</b>	<b>02.15.15</b>	<b>14</b>	<b>3.8</b>
<b>The Flipped Classroom: Getting More out of your Time with your Students</b>	<b>02.19.15</b>	<b>35</b>	<b>4.2</b>
<b>Developing an Effective Educational Component for Your Grant Proposal</b>	<b>03.04.15</b>	<b>6</b>	<b>4.3</b>

<b>Workshop Title Continued</b>	<b>Date</b>	<b>Attendance</b>	<b>Average Rating</b>
<b>Considering Student Diversity in STEM: Creating an Inclusive Environment</b>	<b>04.01.15</b>	<b>17</b>	<b>4</b>
<b>Learning and Teaching with Technology Faculty Workshop: Teaching and Learning with Wikipedia</b>	<b>04.20.15</b>	<b>10</b>	
<b>Student-Faculty Roundtable: Group Work that Works</b>	<b>05.05.15</b>	<b>16</b>	
<b>No Bells or Whistles: Engaging Students and Improving Learning in STEM</b>	<b>05.13.15</b>	<b>16</b>	
<b>Teaching the Anxious Student: Classroom Strategies for Improved Learning and Well-Being</b>	<b>05.15.15</b>	<b>16</b>	<b>4.8</b>
<b>Student-Faculty Roundtable - Running a Memorable Discussion Section</b>	<b>05.18.15</b>	<b>14</b>	<b>3.5</b>
<b>Pedagogy of Liberation, a Palestinian Perspective</b>	<b>05.22.15</b>	<b>14</b>	
<b>LTAF Information Session</b>	<b>06.17.15</b>	<b>17</b>	

## University Teaching Roundtable Series

Roundtable Titles	Date	Attendance
Teaching Outside Your Comfort Zone	10.21.14	17
Teaching Empathy - Using Playwriting As A Way To Experience Multiple Points of View	02.12.15	10
Making Connections Between Courses	04.08.15	13
Enhancing Learning Through Play and Entertainment	05.28.15	16

Searle Fellows: 17  
New Faculty Workshop: 36

### Participation by Disciplines:

STEM (Science, Technology, Engineering, Math)	48%
Humanities	27%
Social Sciences	25%

### 2014-2015 Graduate Teaching Certificate Program participation:

Total participants: 52

STEM (Science, Technology, Engineering, Math)	43%
Humanities	36%
Social Sciences	21%

## Graduate Workshops

DATE	TITLE	ATTENDANCE	AVG. RATING
11/4/2014	Difficult Images: Teaching Sensitive Topics to a Diverse Student Population	14	
11/17/14	Diversity and Inclusion in the STEM Classroom	15	4.0
11/20/14	Creating Affirming and Validating Classrooms for Gender and Sexual Minorities	8	4.3
1/22/15	Scaffolding Assessments for Student Success	5	4.8
2/9/15	Facilitating Discussion: Asking the Right Questions, Building the Right Environment	7	4.7
2/17/15	"I Respectfully Disagree": Promoting Debate in the College Classroom	6	5.0
2/26/15	Online Teaching: Beyond the MOOC	6	4.7
3/4/15	Teaching Through Technology in the College Classroom	10	4.4
3/18/15	Larva, Chrysalis, Butterfly: Designing and Implementing Rubrics	15	4.1
4/1/15	Considering Student Diversity in STEM: Creating and Inclusive Environment*	15	4.0
4/20/15	Promoting Critical Thinking	10	4.4
5/6/15	Classroom Assessment Techniques to Enhance Student Learning in STEM	9	4.3
5/13/15	No Bells or Whistles: Engaging Students and Improving Learning in STEM*	16	
5/15/15	Teaching the Anxious Student: Classroom Strategies for Improved Learning and Well-Being*	16	4.8
	TOTAL	152	4.5
	*Joint Faculty/Graduate Program		

**Course and Teacher Evaluation Council (CTEC) Pilot Study Qualitative Analysis:**

Fall 2012	Winter 2014	Spring 2014
10 classes (3 classes were team taught) to 611 students. 570 students completed the CTECs. Of these 570 students completed the 3 quantitative questions and 165 students responded to the qualitative question.	10 classes to 285 students. 285 students completed the CTECs. Of these 207 students completed the 3 quantitative questions and 74 students responded to the qualitative question.	8 classes to 611 students. 204 students completed the CTECs. Of these 204 students completed the 3 quantitative questions and 51 students responded to the qualitative question.

**Learning, Teaching, Assessment Forum 2014****CONCURRENT SESSIONS, November 18, 2014***Lesley-Ann Brown-Henderson, Learning Through Dialogue**Ihnhee Kim, A Curriculum Reflecting National Standards and Students' Self-Efficacy Belief in Second Language Education**Candy Lee, The Value of Active Learning**John Mordacq, Assessing Student Learning in Inquiry-Based Biology Laboratory Courses**Courtney Albinson and Monika Gutkowska, Creating a Community Safety Net for Individuals in Distress: Assessing Effectiveness of the Question-Persuade-Refer (QPR) Suicide Prevention Gatekeeper Training Program**Franziska Lys, Can iPads in the Language Classroom Enhance Student Assessment: Interim Results from an Ongoing Class**Laura Schellhardt, Modular Learning: The Playwriting Module**Liz Trubey, Laura Panko, and Jim O'Laughlin, Assessing Academic Advising in Weinberg College**Jonathan Fryer and Mary Schuller, Teaching and Assessing Residents in the Operating Room**Daniel Gruber, Real-Time Learning Via Discussion Pods: Implications for Teaching Online and in the Classroom**Anna Parkinson, Switched On, Tuned In: Engaging Students in Critical Thinking in Lectures*

There were 9 poster sessions in addition to the 12 concurrent sessions listed above.