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1. Updates to measurement of our baseline status

Deans’ Interview Findings – 2010 update

Graduate and Undergraduate Students

As a component of the evaluation of the National Science Foundation’s (NSF) funding of Georgia Tech’s Tech to Teaching proposal through NSF’s Innovation through Institutional Integration (I3) program, individual baseline interviews were conducted with the deans of the College of Computing, the College of Engineering, and the College of Science at the start of the Tech to Teaching project. The initial interviews occurred in their offices during February of 2009, and each lasted approximately one hour. One additional interview for a new Dean was conducted for the 2010 reporting period.

Purpose and Methods

The primary purpose of this series of interviews was to obtain initial feedback from the three deans about their perceptions of issues related to Georgia Tech’s role in preparing STEM faculty for teaching careers in middle schools, high schools, or post-secondary institutions where the primary focus is on undergraduate education. The discussions revolved around three main topics:

- Perceptions of careers chosen by undergraduate and graduate students in the college
- Resources available for students at Georgia Tech who want to learn about teaching careers
- Georgia Tech’s role in producing STEM teachers

At the beginning of each interview, the interviewer reminded the participant that his participation was voluntary and that individual comments would be anonymous. A “theme route” served as a guide and kept the discussion within the established parameters. Quotations have been edited for grammar and readability.

This component of the assessment of the Tech to Teaching program is guided by the topics listed above and contributes to understanding the institutional climate towards undergraduate and doctoral students who choose teaching careers prior to the beginning of the grant.

All previously conducted interviews were reported on in the 2009 Tech to Teaching annual report. During the summer of 2010, one of the previously interviewed deans stepped down and was replaced by a new dean. In accordance with prior baseline data gathering practice, the new dean was interviewed using the same interview protocols that the all of the deans had responded to. While the new dean had been at Georgia Tech only a couple of months, his answers reflect both his experiences at GT and at his previous two institutions.

The dean indicated that at his previous institutions, and he suspected at GT, the primary goal for undergraduate students was “either to continue with graduate studies and possibly an academic career or possibly a research career...the others that didn’t have this kind of plan, they mostly went into a professional career...very few of them thought about teaching.” He hypothesized
reasons for students not pursuing a teaching career included low pay, low social prestige, and the challenges of working with adolescents, while acknowledging that the “human side” of teaching is attractive and somewhat lacking in technical jobs.

He sees engineering and computer education to be a “kind of liberal arts education of the twenty-first century”, so, when combined with the general education curriculum, Georgia Tech is an appropriate place for students who are interested in teaching careers. He noted that “the idea is to give them some basics...and some of them go to business, to law, to teaching is a [valid/valued] option.”

He thinks that Georgia Tech should have more publicity and spread the word about opportunities related to teaching. Students and colleges should see this as a viable career path, especially since the economy is struggling and jobs are scarce.
2. Integration with other grants and projects

Last year’s Tech to Teaching annual report outlined the status of the “baseline” Tech to Teaching integration efforts. We had identified a series of NSF-funded projects at Georgia Tech which had potential integration opportunities with Tech to Teaching. 25 projects were considered for integration in last year’s annual report. Project annual reports were collected and analyzed for relevant activities or products in light of the goals and objectives of Tech to Teaching. Additionally, the results of the annual advisory board meeting where PI’s from these projects were invited were reported. A list of various ways to integrate projects was generated from this meeting.

An additional 9 new projects were assessed for integration opportunities this year, and the results of the annual advisory board meeting are included in this report as well. New projects considered for integration this year are marked with asterisks (***) in their descriptions below. Table 1 provides a list of all projects considered for integration and the extent to which integration has taken place and/or is planned to take place in each of four categories: 1) shared training materials, typically available online; 2) shared course/workshop, i.e., Tech to Teaching personnel put on workshops for other projects, other projects send their students to Tech to Teaching courses & workshops; 3) info about teaching careers is provided to Tech to Teaching students through participation in other grants & projects; 4) Tech to Teaching students have the opportunity to be mentored or have an immersion experience through their participation in other grants & projects.

Table 1. Related grants & projects – integration efforts

<table>
<thead>
<tr>
<th>Grant</th>
<th>Training Materials</th>
<th>Course/Workshop</th>
<th>Info about Teaching Careers</th>
<th>Mentoring &amp;/or Immersion</th>
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</thead>
<tbody>
<tr>
<td>A Cohesive Program of Experimental Modules distributed Throughout the ECE (Electrical and Computer Engineering) Program</td>
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<td>planned for future</td>
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<tr>
<td>ADVANCE Leadership Award: Cross-Disciplinary Initiative for minority Women Faculty</td>
<td>planned for future</td>
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<tr>
<td>Alliances for Graduate Education and the Professoriate (AGEP) Allinace: Facilitating Academic Careers in Engineering and Sciences (FACES)</td>
<td></td>
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<td>yes</td>
<td>yes</td>
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<tr>
<td>Broadening Participation in Computing: Georgia Computes/Collaborative Research: Extending &quot;Georgia Computes!&quot;: A Statewide Vertical Alliance to Broaden Participation through Innovative, Inviting, and Relevant Computing Education</td>
<td></td>
<td>planned for future</td>
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<td>planned for future</td>
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<tr>
<td>Building Engineering Achievement in Transportation (BEAT the Traffic Two)</td>
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<td>Yes</td>
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<tr>
<td>Grant</td>
<td>Training Materials</td>
<td>Course/Workshop</td>
<td>Info about Teaching Careers</td>
<td>Mentoring &amp;/or Immersion</td>
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<tr>
<td>CCLI: Using Media Computation to Attract and Retain Students in Computing</td>
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<td>Chemistry Graduate Assistance in Areas of National Need (GAANN)</td>
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<td>Collaborative Research: Georgia STEM Accessibility Alliance (GSAA)</td>
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<td>Empirical Research: Breaking through the Reputational Ceiling: Professional Networks as a Determinant of Advancement, Mobility, and Career Outcomes for Women and Minorities in STEM</td>
<td>planned for future</td>
<td>planned for future</td>
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<tr>
<td>Engineering Education for the Global Economy: Research, Innovation, and Practice</td>
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<td>Georgia Tech Research on Accessible Distance Education (GRADE)</td>
<td>planned for future</td>
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<tr>
<td>GIFT (Georgia Intern-Fellowships for Teachers)</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Graduate Research Fellowship Program</td>
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<td>IGERT: Hybrid Neural Microsystems: Integrating Neural Tissue and Engineered Systems</td>
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<tr>
<td>IGERT: Signals in the Sea</td>
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<tr>
<td>IGERT: Stem Cell Biomanufacturing</td>
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<tr>
<td>Integrating Simulation and Modeling with Design and Testing to Promote Deep Concept Learning in Design-Based Learning Environments</td>
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<tr>
<td>Micro-Analysis of Transfer in the Project-Based Science Classroom: The Influence of Classroom Practices and Culture on Scientific Reasoning</td>
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<tr>
<td>Middle School Science Curriculum Materials: Meeting Standards and Fostering Inquiry through Project-based Inquiry Science Units</td>
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<tr>
<td>Noyce (Teacher Recruitment Initiative in Physics and Chemistry)</td>
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<td>Yes</td>
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<td>Noyce: Impacting Metro-Atlanta Science Teaching (I-MAST)</td>
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<td>Yes</td>
<td>Yes</td>
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<td>Noyce: Increasing Mathematics Teachers for ALL Students (IMTAS)</td>
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<td>Personal Robots for CS1: Next Steps for an Engaging Pedagogical Framework</td>
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<td>planned for future</td>
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<tr>
<td>Grant</td>
<td>Training Materials</td>
<td>Course/Workshop</td>
<td>Info about Teaching Careers</td>
<td>Mentoring &amp;/or Immersion</td>
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<td>REESE: Collaborative Research: Learning About Complex Systems in Middle School by Constructing Structure-Behavior-Function Models</td>
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<td>REESE: Science Online: Learning Through Collaborative Writing of an Open-Content Scientific Encyclopedia</td>
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<td>Research Experience for Teachers: National Nanotech Infrastructure Network</td>
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<td>Yes</td>
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<td>RETA: Alternative Approaches to Evaluating STEM Education Partnerships: A Review of Evaluation Methods and Application of an Interorganizational Model</td>
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<tr>
<td>Science Learning: Integrating Design, Engineering, and Robotics (SLIDER)</td>
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<tr>
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<td>STEP Up!/STEP</td>
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<td>Yes</td>
<td>Yes</td>
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<td>TIES: A Transfer Initiative for Engineering Scholars</td>
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<td>planned for future</td>
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<td>Transforming Homework into Cyberlearning in an Introductory STEM Course</td>
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<tr>
<td>Undergraduate Scholarships in Biomolecular Engineering, Science and Technology</td>
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These projects can be broken down into three general categories: 1) identified projects with which Tech to Teaching has already integrated in some way; 2) identified projects with which Tech to Teaching has not yet integrated but planned integration efforts are in place; 3) identified projects for which integration is less likely due to poor alignment of project goals with Tech to Teaching, and/or conclusion of the project. Projects fitting within each of these categories and the corresponding integration plans will each be reviewed here.

2.a. Projects that have been integrated with Tech to Teaching:

1. Alliances for Graduate Education and the Professoriate: Facilitating Academic Careers in Engineering and Science (FACES)
Project focus/goals (from 2009 annual report): FACES is comprised of several components, each designed to assist underrepresented engineering and science students with navigating the path to an academic career; these components include research experiences, graduate school recruitment efforts, and lectures and workshops on graduate education and academic careers. Funding provided for participants in the project includes doctoral fellowships, travel expenses, and start-up funds for new PhDs.

Integration efforts: The FACES and Tech to Teaching practicums have been completely integrated, creating a joint learning community with participants from each project and eliminating redundancies in programming. Students funded by FACES take CETL courses, and CETL personnel offer workshops tailored for FACES students. Both programs plan to continue these integration efforts.

2. Building Engineering Achievement in Transportation (BEAT the Traffic Two)

Project focus/goals (from 2009 annual report): The overarching goal of the BEAT4 program is to promote STEM achievement in the primarily African American schools in south Fulton Country through the use of classroom activities in STEM courses, implementation of a rigorous engineering course sequence, and student and teacher research internships at Georgia Tech. All program activities will be focused on Transportation Engineering, in the fields of traffic modeling and in the structural and geophysical engineering of transportation infrastructure.

Integration efforts: This project is integrated with the Tech to Teaching STEP program in that a BEAT the Traffic Two participant accompanied the STEP fellows on a research trip to Singapore during SU10. STEP fellows also assist with summer camps for K-12 students put on by Beat the Traffic Two; this enables the STEP fellows to gain additional experience working with K-12 students. This project is in its final year so future integration efforts are n/a.

3. Georgia Intern-Fellowships for Teachers (GIFT)

Project focus/goals (from 2009 annual report):

- Provide industry and university mentors an efficient method of identifying and selecting teachers interested in participating in internships
- Quickly orient teachers to business and university work environments, and mentors to K-12 workplace culture
- Provide participants (teachers and mentors) support throughout the summer by assigning small groups of teachers to a master-teacher facilitator
- Assist teachers with creating an Action Plan for implementing summer experiences into the classroom or more generally applying the GIFT experience in the classroom
- Provide support for Action Plan implementation in the classroom through visits by the GIFT staff
- Foster the development of an extended professional community of learners
- Encourage extended partnerships for communication and collaboration between teachers, industry and university mentors and pass that approach on to the students of the GIFT teachers
  - Integration efforts: Participants in *Tech to Teaching*’s PT SURE program work in labs with GIFT teachers and high school students; PT SURE students put on a poster session (funded by *Tech to Teaching*) at the GIFT end of summer banquet; CETL personnel offered a workshop on poster & research presentation tips to the PT SURE students in preparation for the GIFT poster session. GIFT teachers spoke at a brown-bag presentation for the PT SURE students.
  - Planned integration efforts: For next summer, *Tech to Teaching* personnel plan to work with GIFT teachers to arrange for them to participate in a panel to provide information to GT students interested in teaching.

4. **Middle School Science Curriculum Materials: Meeting Standards and Fostering Inquiry through Project-based Inquiry Science Units**

  - Project focus/goals (from 2009 annual report): the goals for this project were to integrate project-based inquiry curriculum units for middle school science that were developed in three different places into a full three-year comprehensive project-based inquiry middle school science curriculum.

  - Integration efforts: this project generated products and information which informed the curriculum and training for the STEP and SLIDER projects, including training related to inquiry-based and problem-based science. There has also been some integration of coursework, in that participating in the STEP or SLIDER summer training program can substitute for the 1st upper-level CETL course, and being a STEP or SLIDER fellow can substitute for the *Tech to Teaching* practicum.

5. **Integrating Simulation and Modeling with Design and Testing to Promote Deep Concept Learning in Design-Based Learning Environments**

  - Project focus/goals (from 2009 annual report): This project entails an investigation of a design-based science pedagogy. While attempting to understand the design challenge, and perhaps during first attempts to achieve the challenge, students identify the science content they need to apply for success, and they move between learning that content and applying it to achieve the design challenge. In the best of enactments of a design-based approach, learning is active, expertly facilitated by the teacher, and includes a variety of opportunities for publicly articulating science understanding, debating understandings, and debugging those explanations.

  - Integration efforts: this project generated products and information which informed the curriculum and training for the STEP and SLIDER projects, including training
related to inquiry-based and problem-based science. There has also been some integration of coursework, in that participating in the STEP or SLIDER summer training program can substitute for the 1st upper-level CETL course, and being a STEP or SLIDER fellow can substitute for the Tech to Teaching practicum.

6. Micro-Analysis of Transfer in the Project-Based Science Classroom: The Influence of Classroom Practices and culture on Scientific Reasoning

- Project focus/goals (from 2007 annual report): In this project, researchers have been seeking to see how development of scientific reasoning happens in a learning environment in which nearly all of the practices important to transferable learning (see, e.g., Bransford et al., 2000) are carried out. This literature tells us that practices that engage students actively in focusing attention on critical issues, features of problems, abstractions and principles, and evaluating their own understanding, are important to promoting transferable learning, and that learners need repeated deliberative practice of targeted skills using targeted content to learn well. Learning by Design [the classroom curriculum developed as part of this project] provides enactments of Project-Based Inquiry that carry all of these out. Researchers sought to find out what typical paths of that development look like under these circumstances and what affects those paths.

- Integration efforts: this project generated products and information which informed the curriculum and training for the STEP and SLIDER projects, including training related to inquiry-based and problem-based science. There has also been some integration of coursework, in that participating in the STEP or SLIDER summer training program can substitute for the 1st upper-level CETL course, and being a STEP or SLIDER fellow can substitute for the Tech to Teaching practicum.

7. Research Experience for Teachers: National Nanotech Infrastructure Network

- Project focus/goals (from 2009 annual report): Researchers will provide teachers with a high quality research project in nanoscale science and engineering, assist them in understanding the education and career opportunities in STEM and nanotechnology so that they can relate these opportunities to their students, and assist the RETs (Research Experience for Teachers) in introducing nanotechnology into their science classroom.

- Integration efforts: GIFT teachers and Teaching SURE students work on this research project; graduate students help run summer camps for K-12 students which are put on through this RET

8. Chemistry Graduate Assistance in Areas of National Need (GAANN)

- Project focus/goals: This project provides fellowships, through academic departments and programs of IHEs (Institutions of Higher Education), to assist graduate students with excellent records who demonstrate financial need and plan to pursue the highest degree available in their course study at the institution in a field designed as an area of national need.
Integration efforts: Students participating in this program are encouraged to take advantage of Tech to Teaching programming and resources; this integration was written into the GAANN grant.


- Project focus/goals (from 2008 annual report & NSF website): Two-year scholarships are being provided to 32 science and engineering students majoring in fields that may lead to either chemistry or physics certification. The students will be receiving annual $10,000 scholarships during their senior year and subsequent enrollment in the fifteen month chemistry and physics Master of Arts Teaching program. The project is serving as a model for two institutions of distinctly different cultures (one a university with a strong education school, the other a technological university) to join forces to create an exemplary program that is producing effective grades 6-12 chemistry and physics teachers. Project features include the initiation of a twelve credit hour educational course sequence at Georgia Institute of Technology, the close working relationship of the universities with school systems serving the greater Atlanta area, and the K-12 teaching experience of the science education faculty.

- Integration efforts: Tech to Teaching students gain teaching experience through participation in NOYCE scholarship programs; Noyce scholars are encouraged to take CETL 4001 and 4002 as preparation.

10. Noyce: Impacting Metro-Atlanta Science Teaching (I-MAST)

- Project focus/goals: This project is a collaboration between Georgia State, Georgia Tech, and four high-need school districts. I-MAST is addressing the critical need for high quality science teachers who are prepared for and committed to teaching in Metro Atlanta High-need school districts. I-MAST Robert Noyce Scholars are being recruited and selected from the pool of STEM majors from Georgia State and Georgia Tech to pursue secondary science teacher certification via a 5-year Master of Arts in Teaching (MAT) Science program at Georgia State; selection criteria ensure the participation of underrepresented groups. Twenty-four of these STEM undergraduate majors are receiving 2-year scholarships in their senior year of undergraduate studies and their first year of teacher certification studies.

- Integration efforts: Tech to Teaching students gain teaching experience through participation in NOYCE scholarship programs; Noyce scholars are encouraged to take CETL 4001 and 4002 as preparation. Jennifer Leavey & Beth Spencer offered a summer internship where GT undergraduate students helped teach K-12 summer school. This was intended as a recruitment tool for the Noyce scholarship programs, so that these students could get a better sense of whether they wanted to commit to K-12 teaching. This internship program generated lots of applications; applicants were invited to join the pre-teaching community, sign up for the pre-teaching e-mail lists, etc.

11. Noyce: Increasing Mathematics Teachers for All Students (IMTAS)
o Project focus/goals: This project is recruiting, preparing, and retraining 36 teachers of secondary mathematics for high needs areas of diverse populations. Junior and senior level students are recruited primarily from GT and KSU (Kennesaw State University). These recruits then enter KSU’s Master of Arts in Teaching degree program for mathematics education. This program is designed to increase the number of teachers for high needs areas, and instructs teachers specifically in how to work with students for whom English is a second language.

o Integration efforts: Tech to Teaching students gain teaching experience through participation in NOYCE scholarship programs; Noyce scholars are encouraged to take CETL 4001 and 4002 as preparation.

12. IGERT: Hybrid Neural Microsystems: Integrating Neural Tissue and Engineered Systems

o Project focus/goals (from 2008 annual report): This IGERT program is focused on the creation of a training environment that combines cellular and systems neuroscience with microelectronics/computing technology and microelectromechanical systems (MEMS). The novel combination of disciplined will result in a program whose intellectual merit is embodied in the development and application of systems that integrate neural tissue and engineered components. Research applications range from enhancing knowledge of living organisms, to augmenting damaged neuronal tissue, to creating biologically-inspired engineered systems. The participating faculty members have a strong track record of interdisciplinary education and research that has laid the foundation for this effort. The IGERT program will build upon this foundation through a combination of educational infrastructure and interdisciplinary research opportunities that will facilitate the training of IGERT fellows, who will emerge from the program as a new breed of scientist-engineer that understands and can apply knowledge that crosses these two, previously disparate disciplines.

o Integration efforts: A few Tech to Teaching students have also participated in IGERTs. Students funded by IGERTs are given priority in signing up for Tech to Teaching classes, and Tech to Teaching personnel inform IGERT PIs of this fact.

13. IGERT: Signals in the Sea

o Project focus/goals (from 2009 annual report): This IGERT program integrated ecology, chemistry, sensory biology and small scale physics of flow (hydrodynamics) to understand how marine and freshwater organisms communicated chemically and how these chemically-mediated interactions structured populations and organized communities.

o Integration efforts: A few Tech to Teaching students have also participated in IGERTs. Students funded by IGERTs are given priority in signing up for Tech to Teaching classes, and Tech to Teaching personnel inform IGERT PIs of this fact.

14. IGERT: Stem Cell Biomanufacturing***
- Project focus/goals (from nsf.gov): The transformation of stem cell biology discoveries into technologies for a range of applications has enormous promise to impact a broad spectrum of society; however, achieving this aim will only occur if individuals are trained with the necessary interdisciplinary expertise to facilitate growth of the field. This Integrative Graduate Education and Research Training (IGERT) award to the Georgia Institute of Technology provides such training for Ph.D. graduate students by creating a comprehensive educational program that brings together technological innovation, commercialization, and public policy aspects of stem cell research. The specific research projects conducted as part of this training focus on developing standardized and quantitative methods necessary for stem cell isolation, characterization, propagation, and differentiation. Scalable biomanufacturing practices will be developed to efficiently produce sufficient numbers of stem cells and derivatives in readily accessible formats in order to meet the need for novel therapeutic and diagnostic applications of stem cells.

In addition to the research and educational activities to train Ph.D. students to be leaders in the field of stem cell biomanufacturing, one of the broader impacts of this program will be to provide students with a global scientific perspective based upon the established relationships with the researchers’ international partners. Graduates will contribute to the burgeoning stem cell industry, catalyzing new biomedical and biotechnological opportunities for stem cells to impact society. A key broader impact and long-term objective of the program will be to foster the participation of members of underrepresented groups in stem cell engineering.

- Integration efforts: A few Tech to Teaching students have also participated in IGERTs. Students funded by IGERTs are given priority in signing up for Tech to Teaching classes, and Tech to Teaching personnel inform IGERT PIs of this fact.


- Project focus/goals (from project proposal): This project seeks to provide financial assistance and academic support for junior-level community college students (primary focus is on two specific schools, Miami Dade College & Georgia Perimeter College) transferring to Georgia Tech’s School of Electrical and Computer Engineering. The goal is to provide annual funding in the form of 90 scholarships to 30+ students over the five-year grant period. Planned support activities for the accepted transfer students include a roundtable lunch series, the GT Challenge Course (a community-building rope-climbing course), faculty advising, graduate TAs dedicated specifically to assisting the TIES students, tours of GT labs, workshops on research presentations & technical writing, opportunities for undergraduate research, industry mentors, and student panels.

- Integration efforts: STEP/SLIDER fellows utilize Tech to Teaching programming – the STEP/SLIDER summer training is essentially a special section of CETL 8803TL. Tech to Teaching personnel allow the students who participate in STEP/SLIDER to place out of the first few steps of the T3 ladder due to the heavy overlap. STEP/SLIDER fellows have high priority if they want to participate in any of the other T3 courses/workshops due to their being in a partner program.
16. **STEP UP!/STEP** (please note that STEP Up! is a phase II continuation of the STEP program, and for this reason STEP Up! is generally referred to simply as “STEP” on the GT campus.)

- Project focus/goals (from the 2008 annual report): The STEP Up! (Student and Teacher Enhancement Partnership) program aspires to institutionalize K-12 teaching internships as a valued component of graduate and undergraduate education and to continue working to help create a university campus climate that encourages the active participation by students and STEM (Science, Technology, Engineering, and Mathematics) faculty in the challenges of K-12 education. The program partners undergraduate and graduate student Fellows with metro-Atlanta area high school science or mathematics teacher-coordinators to enhance both the math and science education in the high school and the educational experiences of the student Fellows.

- Integration efforts: STEP/SLIDER fellows utilize *Tech to Teaching* programming – the STEP/SLIDER summer training is essentially a special section of CETL 8803TL. *Tech to Teaching* allows the students who participate in STEP/SLIDER to place out of the first few steps of the T3 ladder due to the heavy overlap. STEP/SLIDER fellows have high priority if they want to participate in any of the other T3 courses/workshops due to their being in a partner program.

2.b. **Projects with which *Tech to Teaching* plans to integrate:**

17. **ADVANCE Leadership Award: Cross-Disciplinary Initiative for minority Women Faculty:**

- Project focus/goals (from 2009 annual report): Overall, this Cross-Disciplinary Initiative for Minority Women Faculty, through its thorough integration of research (conducted by PIs and students), professional development, socialization, education, and outreach activities will contribute to 1) the success and advancement of minority women faculty in science and engineering, 2) the training of researchers who can work at the interface between social science and science and engineering and 3) the body of knowledge on underrepresented minority women in STEM.

- Planned integration efforts: The plan is to make "products" from activities in the ADVANCE grant (e.g., handouts, workshops) available to *Tech to Teaching* participants, perhaps online; *Tech to Teaching* personnel will contact the PI of this grant to discuss ADVANCE handouts, workshops, etc. to assess their potential usefulness for *Tech to Teaching* participants.

18. **Georgia Tech Research on Accessible Distance Education (GRADE)**

- Project focus/goals (from 2007 annual report): The project goals relate to improving issues related to distance education; the goals fall into three distinct areas: professional development, barrier removal, and outreach through the Multimedia Educational Resource for Learning and On-Line Teaching (MERLOT).

- Planned integration efforts: online materials generated through GRADE could be made available to T3 participants (i.e., in CETL 4001 and 4002 courses); *Tech to
Teaching personnel will contact the project’s PI to access the online materials, and CETL course instructors will review these materials to assess their relevance to the CETL courses.

19. Sci-Train

- Project focus/goals (from 2009 annual report): SciTrain is dedicated to improving knowledge and practice in the field of disability education. Its activities are designed to work together to generate research data on the needs of STEM teachers, create training modules based upon that research, evaluate the effectiveness of the research, and then disseminate training and research data. SciTrain’s evaluation activities are essential to creating a baseline of teacher knowledge about accessible STEM. This is being accomplished through its ongoing evaluation research, including focus groups, longitudinal studies, online surveys and related work.

- Planned integration efforts: online materials generated through Sci-Train could be made available to T3 participants; Tech to Teaching personnel will contact the project’s PI to access the online materials, and CETL course instructors will review these materials to assess their relevance to the CETL courses.

20. Sci-Train University

- Project focus/goals (from 2009 annual report): to provide STEM instructors with effective training, resources, and incentives for making reasonable accommodations to in-person courses, labs, online and hybrid courses. Online resources will be developed in order to inform stakeholders about the barriers that students with disabilities face in their STEM educations and provide information about strategies to remove those barriers in order to improve access. Instructors in high-impact courses will be trained through workshops and online modules. After initial local efforts (at GT and the University of Georgia), all materials will be made available online so that a national audience can be reached.

- Planned integration efforts: online materials generated through Sci-Train could be made available to T3 participants; Tech to Teaching personnel will contact the project’s PI to access the online materials, and CETL course instructors will review these materials to assess their relevance to the CETL courses.

21. A Cohesive Program of Experimental Modules Distributed Throughout the ECE (Electrical and Computer Engineering) Program

- Project focus/goals (from 2009 annual report): This project seeks to provide a laboratory-like experience in ECE courses which do not have a lab component. Low-cost, portable experiments are designed to be conducted in the classroom or at students’ homes. A center, the Center for Teaching Enhancement using Small-Scale Affordable Labs (TESSAL), was initiated for this project.

- Planned integration efforts: Tech to Teaching participants could shadow instructors in the ECE courses in which these experimental modules are implemented; Tech to Teaching personnel will contact the project’s PI do discuss shadowing opportunities
for higher education *Tech to Teaching* participants. The PI and/or colleagues could put on a workshop to educate *Tech to Teaching* participants about the modules. The PI reports that they are working on developing a website so the modules can be distributed.

22. **CCLI: Using Media Computation to Attract and Retain Students in Computing**

- Project focus/goals (from NSF website): The Using Media Computation to Attract and Retain Students in Computing project is using research on why women have avoided computing to develop an alternative path to introductory computing....This project is developing a course which is presenting the same concepts as found in typical introductory computing courses, but is using new examples based on media computation...The media computation approach is proving to be particularly successful at attracting and retaining women, and at motivating non-CS [Computer Science] majors to succeed in computing. It is creating a path to computing that appeals to a broader group of students. Initial results are indicating that students on this path are achieving the same learning and performance levels at those on traditional paths. Ultimately, greater diversity in computing will result in a more technologically literate and globally competitive citizenry.

- Planned integration efforts: *Tech to Teaching* participants could shadow instructors in the computing courses in which this approach is being implemented; *Tech to Teaching* personnel will contact the project’s PI to discuss shadowing opportunities for higher education *Tech to Teaching* participants.

23. **TIES: A Transfer Initiative for Engineering Scholars***

- Project focus/goals (from 2010 annual report): This project entails a partnership between Georgia Tech and three Georgia middle schools (one urban, one suburban, and one rural) in which project personnel will develop a project-based inquiry science curriculum for 8th grade students. Teachers (7 total) at the middle schools will implement this curriculum, which makes use of LEGO robots and includes physics content in three units: force and motion, energy, and waves. Georgia Tech graduate students will also serve as SLIDER fellows (6 total), assisting with implementation of the curriculum in the middle schools. A week-long conference was held in July, 2010 in order to provide training to the teachers and SLIDER fellows on the curriculum, LEGO robots, and the purpose and goals of SLIDER. Summer camps using SLIDER materials were also offered in July, and weekend workshops using the materials will be offered throughout the 2010-2011 school year.

- Planned integration efforts: the plan is to present information about *Tech to Teaching* opportunities at one of the professional development workshops provided as part of the TIES project. *Tech to Teaching* could assist in spreading the word about these scholarships to students at various community colleges.

- Project focus/goals (from 2009 annual report): To improve the quality of computing education throughout the pipeline and across the state, and in doing so, broaden and increase the flow of qualified students in undergraduate and graduate computing programs.

- Planned integration efforts: The summer camps for K-12 students run through this program represent a potential area for future integration – Tech to Teaching students could help plan and run the camps. Tech to Teaching undergraduate students could attend the professional development programs offered through this project, and graduate Tech to Teaching students could help plan and/or facilitate these professional development programs.

25. Empirical Research: Breaking through the Reputational Ceiling: Professional Networks as a Determinant of Advancement, Mobility, and Career Outcomes for Women and Minorities in STEM***

- Project focus/goals (from PI’s discussion at the 2010 advisory board meeting): Studying the STEM workforce, specifically professional and collaborative networks of academics, and the potential gender differences on these networks, and potential differences in how they operate for underrepresented minorities. A focus on the job search process is also included in this study.

- Planned integration efforts: The outcomes of this project might be useful for sharing with Tech to Teaching graduate students. Also, the PI reported that they could possibly incorporate survey questions on topics of interest to Tech to Teaching.

2.c. Projects with low potential for integration with Tech to Teaching:

26. RESEE: Science Online: Learning Through Collaborative Writing of an Open-Content Scientific Encyclopedia:

- Project focus/goals: (from NSF website): The question that this project addresses is whether the new online publishing paradigm represented by Wikis can be successfully leveraged for science education? In this research, collaborative software that extends Wiki technology to support science learning by high-school students will be created. Students will learn about science content and method by collaboratively researching and writing about controversial science topics, supporting their writing with strong citations, and publishing their writing on the internet.
o There are currently no planned integration efforts due to poor alignment of this project’s activities and goals with those of *Tech to Teaching*.

27. REESE: Collaborative Research: Learning About Complex Systems in Middle School by Constructing Structure-Behavior-Function Models

o Project focus/goals (from 2008 annual report): This project is a partnership between research teams at Georgia Tech and Rutgers University. The two teams collaborate on most project functions, with GT taking the lead in the development of learning technologies and Rutgers taking the lead in implementing and evaluating the technologies.

o There are currently no planned integration efforts due to poor alignment of this project’s activities and goals with those of *Tech to Teaching*.


o Project focus/goals (from 2009 annual report): The purpose of this report, therefore, is to catalyze a conversation within the U.S. engineering community on creating and sustaining a vibrant engineering academic culture for scholarly and systematic educational innovation – just as has been done for technological innovation – to ensure that the U.S. engineering profession has the right people with the right talent for a global society.

o There is low potential for integration with *Tech to Teaching* because this project involved working on a report. *Tech to Teaching* personnel worked on this project and in doing so gained insights about the necessity of working with pre-faculty on professional development.

29. RETA: Alternative Approaches to Evaluating STEM Education Partnerships: A Review of Evaluation Methods and Application of an Interorganizational Model

o Project focus/goals (from 2008 annual report): This project involves researchers from the School of Public Policy and the Center for Education Integrating Science, Mathematics, and Computing (CEISMC). The objectives of this research project are to review how partnership performance is evaluated in the STEM educational community and also in a variety of other settings drawn from other policy contexts, industry, and not-for-profits, and also to develop and test a model exploring how degrees of embeddedness among partners influence the process by which STEM educational outcomes are pursued and achieved.

o There are currently no planned integration efforts due to poor alignment of this project’s activities and goals with those of *Tech to Teaching*; also, this project has expired.

2.d. Projects with potential for future integration – currently in process of establishing communication with PI

30. Collaborative Research: Georgia STEM Accessibility Alliance (GSAA)***
○ Project focus/goals (from nsf.gov): The University of Georgia and Georgia Institute of Technology are collaborating partners with University of in a proposal to create the Georgia STEM Accessibility Alliance (GSAA). GSAA aims to establish an alliance between Georgia Institute of Technology, the University of Georgia, Georgia Perimeter College and three public secondary school districts. All project activities support the goal of increasing the postsecondary STEM degree and career attainment of individuals with disabilities. The GSAA’s goals relate to increasing the number of secondary students with disabilities (SWD) enrolling in STEM postsecondary classes and majors, increasing the retention and graduation rates of individuals with disabilities in postsecondary STEM majors, and increasing successful entry rates of GSAA students into STEM graduate programs. A distinctive feature of GSAA is the use of a virtual world as the primary service-delivery model. The use of virtual mentoring and teaching, social networking, academic support, transition assistance, and preparation of instructions will be the primary interventions utilized in GSAA. GSAA goals are:

Goal 1: Develop and evaluate GSAA intervention technologies and materials in Year 1 for use in Years 2-5. All modular materials will be made available via the Virtual Learning Reserves, one Reserve for secondary students and faculty and one for post-secondary students and faculty.

Goal 2: Increase the number of secondary SwD (40/per year/140 total) participating in the GSAA STEM mentoring and virtual world STEM activities and entering STEM postsecondary programs in two-year colleges, technical colleges or university partner institutions (50% of participants, or 20 per project year, 80 total). Entering is defined as matriculating with a stated major in a STEM-related field.

Goal 3: Increase retention in STEM majors by 180 students (baseline of 2,479 SWD, 723 SWD with declared STEM majors) and number of students graduating with STEM degrees (associates, baccalaureate, and graduate degrees) by 10 students from 2007 baseline (baseline of 94 students) in GSAA’s two-year college and university partner institutions through peer and faculty virtual and mentoring activities, evidence-based STEM learning practices, UDL solutions, and professional development initiatives.

Goal 4: Increase the entry of GSAA STEM graduates (associates, baccalaureate and graduate) into STEM graduate programs by 10 per year from baseline measures (71 students) in Years 2-5.

○ Planned integration efforts: The PI on this project has expressed interest in integrating with Tech to Teaching and is in the process of setting up a meeting with Tech to Teaching personnel.

31. Graduate Research Fellowship Program***

○ Project focus/goals (from nsf.gov): The purpose of the NSF Graduate Research Fellowship Program (GRFP) is to help ensure the vitality and diversity of the
scientific and engineering workforce in the United States. The program recognizes and supports outstanding graduate students who are pursuing research-based master’s and doctoral degrees in fields within NSF’s mission. The GRFP provides three years of support for the graduate education of individuals who have demonstrated their potential for significant achievements in science and engineering research. The ranks of NSF Fellows include individuals who have made transformative breakthroughs in science and engineering research and have become leaders in their chosen careers and Nobel laureates.

- Information on expansion of this program to include funding for STEM education research (from news.sciencemag.org): “Candidates for the 2011 Graduate Research Fellowship (GRF) program, whose applications are due in next month, will now find STEM education listed as a recognized field of research. That’s a first for NSF’s most prestigious fellowship program... "We wanted to clarify things, and say that we support research in this area," explains James Lightbourne, head of NSF's division of graduate education. Until this year, STEM education was absent from the list of 150 fields—from analytical chemistry to zoology, including 21 fields of engineering and four branches of anthropology—that NSF was willing to support... The new designation, he [Noah Finkelstein, a physicist who conducts physics education research in a highly lauded program at the University of Colorado, Boulder] adds, recognizes that STEM education is "an important, legitimate pursuit for graduate research and for the portfolio of activities that NSF and scientists are responsible for." That recognition may help some graduate students come out of the STEM "closet."

- Planned integration efforts: future integration plans need to include informing the proper advising networks so that students applying to this program or students who are being encouraged to apply for the program understand that research on STEM education is now an eligible research area.

32. Personal Robots for CS1: Next Steps for an Engaging Pedagogical Framework***

- Project focus/goals (from nsf.gov): This project develops an exciting and engaging curriculum for teaching introductory computing within the context of using personal robots. The second goal is the design and development of an affordable personal robot that can be brought to the level of a refined product. The project includes both the development of a textbook for use in the teaching of CS1 courses and a new software framework that will enable the use of a choice of robots, programming languages, and operating systems.

The project is meant to directly address the ongoing crisis in attracting and retaining students into computing disciplines. Based on the previous successes, the project expands and replicates the previous results on a national level. It supports faculty enhancement, community building for wider adoption and detailed assessment at a diverse range of institutions. It integrates several facets of research and development including rethinking of introductory curricula; design, development, and manufacturing of innovative robot hardware; design and development of a modern, multi-language, cross-platform software framework; context-driven
textbook and other teaching materials; and community building in the educational robotics domain.

The project has a potential to develop resources that can be used and shared by instructors worldwide in teaching CS1 and robotics to undergraduate students. It establishes a non-profit, commercial, open-source distribution channel for robot kits, software, and texts. An extensive dissemination plan includes hands-on faculty training workshops to assist a diverse range of colleges and universities to test, evaluate, and adapt the materials.

- Planned integration efforts: The PI on this project has been contacted but no planned integration efforts exist at this time.

33. Transforming Homework into Cyberlearning in an Introductory STEM Course***

- Project focus/goals (from nsf.gov): This multi-institutional project is developing novel cyberlearning exercises involving computation for introductory, calculus-based mechanics. The exercises provide students with rich dynamic setting to gain experience with solving a wide variety of mechanics problems and build correct physical intuition by using computation to visualize motion and to model more physically realistic situations (e.g. visualize 3D motion dynamically and calculate a wide range of quantities describing the motion). The exercises are also intended to help students overcome anxieties associated with using computation, thereby reinforcing the importance of computation as a key tool for solving today's science and engineering problems.

- Planned integration efforts: The PI on this project has expressed interest in integrating with Tech to Teaching and is in the process of setting up a meeting with Tech to Teaching personnel.

34. Undergraduate Scholarships in Biomolecular Engineering, Science and Technology***

- Project focus/goals (from nsf.gov): This project, administered through a chemistry and biochemistry department, provides a scholarship program for annual cohorts of up to 20 academically talented undergraduates who are pursuing baccalaureate degrees in closely allied biology, chemistry, and engineering disciplines. Program functions are to: 1) increase the number of STEM graduates from underrepresented groups, 2) decrease time-to-degree, and 3) provide support services that improve retention of students to degree achievement and placement in STEM careers. The program addresses the first two years of the college curriculum as a foundation for retention of students in STEM disciplines and for further academic success by providing enhanced mentoring, a coherent suite of student support services based around a Living Learning Community, and multiple opportunities for interactions with research active faculty and alumni. In addition, it fosters enhanced involvement of scholars in experiential learning programs (such as undergraduate research and internships) that provide them with the skills, experiences, and motivations needed to succeed in college and to enter productive, sustainable and rewarding careers in STEM disciplines. A broader goal of the program is to create
and document the effectiveness of a scalable and transferable paradigm for the education of tomorrow's leaders in science and technology.

- Planned integration efforts: The PI on this project has been contacted but no planned integration efforts exist at this time.

2.e. Overall integration plans

A series of general ideas for non-project specific potential integration efforts was generated by Tech to Teaching personnel and attendees of the 2009 and 2010 Tech to Teaching advisory board meetings. These ideas are summarized in the list below.

- Seek opportunities for students in related programs to receive some of their training through T3 courses and workshops
- Offer content modules at T3 courses and workshops which have been customized to needs of specific related programs
  - Hold a T3 workshop highlighting materials/outcomes/products from various grants so their personnel will have an opportunity to share what they've learned
  - Pull out modules from T3 courses/workshops for specific pedagogies; give those to developers for other grants so they can use these pedagogical approaches for delivering their specific content
- Increase communication about and visibility of T3 activities, especially among students already participating in education-related outreach programs
  - New Whistle editor may be a good resource; this person wants to publish monthly CETL activities, perhaps including Tech to Teaching activities; other campus media could also be considered
- Hold a forum for faculty to discuss Tech to Teaching programs
  - we use the annual advisory board meeting for this purpose
- Create a website/resource list of all campus/community teaching-oriented activities
- Offer a course in evaluation for T3 students; as a component of this class, students could evaluate an ongoing grant, perhaps a Phase 1 project where there is typically little or no budget for assessment/evaluation
- Have T3 students assist faculty with writing/developing grants, and also with creating new curriculum/educational innovations (e.g., in CCLI grants)
- There is a need for a CS methods course; GT could build this course and share it with other universities
• The *Tech to Teaching* undergraduate students started a pre-teaching club; it began in 2010 and is quite active w/40-50 members.

• Minor programs at both the graduate and undergraduate levels are currently being discussed.

• To meet the need for training in online teaching, GT PhD students can receive training for online teaching at GA Perimeter and then teach a class there online.

2.f. *Tech to Teaching* Advisory Board Meeting (held on 11/17/10)

Attended by 26 people, the *Tech to Teaching* Advisory Board meeting was held on 11/17/10 and consisted of approximately 3 hours of presentations and discussions followed by a group lunch. The main take-aways from the meeting include:

1) *Tech to Teaching* programming benefits: The group as a whole is very supportive of developing education minors at both the undergraduate and graduate level, and creating the necessary coursework to support these minor programs.

2) Georgia Tech cultural views of non research university teaching jobs: GT needs to work on preparing its students for K-12 teaching jobs and for higher education jobs at institutions other than GT-type institutions. This is important both for the students who want to hold these types of jobs, and also for GT, which will benefit from better educated undergraduate and graduate students admitted to Tech if the quality of teaching at K-12 and smaller higher education institutions is improved (via *Tech to Teaching* graduates working out in the field).

Attendees:

• CETL personnel:
  o Director: Donna Llewellyn
  o Assessment Team: Bob DeHaan, Sunni Newton, Caroline Noyes, Tris Utschig
  o *Tech to Teaching* higher education programming: Lydia Soleil & Damon Williams

• CIESMC personnel: Jamila Cola, Gustavia Evans, Bonnie Harris, Donna Whiting

• PIs or other personnel of related grants & projects: David Collard, Barb Erickson, Bonnie Ferri, Mark Guzdial, Jennifer Leavey, Gary May, Julia Melkers, Michael Schatz, Ray Vito, Doug Williams, Loren Williams, Jeannette Yen

• Other attendees: Dana Hartley (Academic Affairs), Michelle Gaines (GTRI), Beth Spencer (Academic Affairs)
The advisory board meeting consisted of four main portions:

1. overview of the manner in which this project is approaching integration efforts, provided by Donna Llewellyn

2. description of other NSF-funded projects and ideas for potential integration with Tech to Teaching, provided by the PIs/leaders of various projects (Bonnie Ferri, David Collard, Bonnie Harris, Mark Guzdial, Barb Erickson, Jennifer Leavey, Julia Melkers, Doug Williams)

3. brief discussion of Tech to Teaching facts and figures, provided by Donna Llewellyn

4. large group discussion of development efforts for GT education minors (at the undergraduate and graduate levels), and other “big ideas.”

Topics discussed included:

- Courses involving curricular innovations, particularly the type typically developed in CCLI grants, might serve as an ideal arena for Tech to Teaching students to shadow or do a practicum, so that they can get teaching experience in classrooms where these types of innovations are being used. Students could also help with the development of such curricular innovations.

- A class on evaluation could be created; as a part of this class, students could help with the evaluation of an actual grant, specifically a Phase 1 project where there is no budget for formal assessment and evaluation of the project.

- It is good for Georgia Tech when our PhD students graduate and go to teach K-12 or in a non-R1 type school. This improves the training that our undergrad and grad students will have received when they get here. GT needs to prep students slightly differently for R1 jobs vs. jobs at other types of institutions.

- A class on CS Methods is needed – perhaps Georgia Tech could work on developing this and have it be one of the options for the education minor.

- There is a high need for training in online teaching, in part because of the federal Department of Education’s focus on rural education. CETL will get materials on online teaching currently being developed by the USG and offer a workshop/class to GT.

- Jennifer Leavey & Beth Spencer created a sort of internship where undergrad students interested in K-12 teaching helped with summer school. This helps them figure out if they really might want to teach K-12, and helps recruit students for Noyce scholarships.
• Discussion of tips for successfully getting access to K-12 schools for research; important to build trust with the K-12 teachers, prove that GT does know something about education, and we’re not there just to serve our own needs and then leave.

• Discussion of services/resources available for post-docs – consensus was that there’s not much. It was suggested that CETL conducts a needs assessment survey; also the idea of creating an office of post-doc studies or something like this was brought up. More post-docs should be given the opportunity to teach and to receive professional development as part of the post-doc position.

• There was lots of discussion about education minors at GT, which are currently under development. The group is supportive of the minors.
  o New classes will need to be developed, and maybe some existing courses can be repackages with an education focus.
  o There may be two “tracks” for the minor: 1) background in STEM education policy, ethics, etc.; 2) prep for a career in K-12 teaching (although probably not full certification).
  o Classes from GSU could be cross-listed at GT and count as part of the minor.
  o For the PhD minor, the guidelines may need to be expanded so a PhD student can get an education minor even if the courses don’t directly relate to his/her research.
3. Activity-specific reporting

The Tech to Teaching programming umbrella contains five main elements. Each of these elements contains a set of activities to help students move along the trajectory towards a teaching career. The five elements are advising, coursework, mentoring, immersion, and induction into the community. Four of the elements (coursework, mentoring, immersion, and induction into the community) occur in a sequential order, with the other (advising) occurring throughout. These elements are displayed in Figure 1.

Figure 1: Tech to Teaching activities ladder

![Tech to Teaching Diagram]

Georgia Tech culture and infrastructure that encourages and enables students to effectively pursue careers in K-12 or College teaching

*P.L.C. stands for Professional Learning Community

Substantial progress continues to be made in producing the infrastructure represented in Figure 1. These elements are discussed individually in the sections following this overview. Overall, the project remains ahead of the timeline included in the initial submission of the grant proposal (see Table 2). In the 2009 annual report it was noted that course offerings were ahead of schedule for the higher ed pathway, and enrollment in mentoring experiences for the K-12 pathway was higher than projected. This pattern has continued through the end of 2009 and into 2010 with additional sections of courses being offered. Also, courses are being offered during additional terms. Details of these activities are described below for the Higher Ed Pathway and the K-12 Pathway.
Table 2: *Tech to Teaching* proposal timeline

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Definitions:

- **8001**: Three credit course to be offered through CETL for doctoral students about course design and teaching in higher education settings.
- **8002**: Three credit course to be offered through CETL for participants in the mentored teaching practicum.
- **8003**: One credit course to be offered through CETL for participants in the Faculty Internship program.
- **Ac Job**: Workshops on the academic job search.
- **Fac Dev**: Materials and professional development for faculty advisors and mentors to assist them in the job of advising students interested in academic careers.
- **TS-GS**: T-Square site for graduate students in the program and for a community after graduation.
- **TS-FD**: T-Square site for faculty advisors and mentors for a repository of materials and a community for sharing ideas and practices.
- **4001**: Existing 3 credit course offered through CETL about educational practices and theory for students interested in pursuing teaching in the K-12 arena.
- **4002**: Existing 3 credit course offered through CETL about applying theory in the K-12 classroom, includes 6 hours/week internship in a school.
- **REU/RET**: Placement of undergraduate students into labs where teachers are carrying out an RET experience, providing a research experience while being mentored by a master teacher.
- **Retreat**: A retreat for new teachers.
- **Dev**: Develop new courses/materials/workshops.
- **Offer**: Offer the courses/materials/workshops; **Offer 2**: Offer two sections of the course.

[Courses and workshops and materials will be regularly reviewed and revised based on feedback and review.]

6/9/12: Number of students in REU/RET teaching program.

- Higher Ed Pathway status
  - Pieces ahead of schedule
    - Revised version of CETL 8001 offered as 8802 TL (2 credits) and covering teaching and learning fundamentals – offered spring 2010 rather than fall and currently planned for each spring at the three credit level.
    - Revised version of CETL 8002 offered as 8802 CD (c credits) and covering course design – offered fall 2010 rather than spring 2011 and currently planned for each fall at the three credit level.
    - Revised version of CETL 8003 offered as two separate courses (8803 PR and 8803 IMM) covering a mentored practicum and mentored immersion experience. These were first offered fall 2009 rather than spring 2010 as expected. In addition, they are now being offered every term rather than fall only.
  - Pieces behind schedule (with explanation of shifts in plans)
• TS-GS online support site: The original plan was to have two t-square sites (t-square is the learning management system used at Georgia Tech), one for graduate students participating in and graduating from Tech to Teaching and one for faculty advisors and mentors of Tech to Teaching graduate students.

It has evolved such that we have a CETL4Students site which archives all graduate student Tech to Teaching a la carte workshops and is used to advertise workshops (there is a mailing list feature), courses, and other related Tech to Teaching programs, events, and resources. This was complete in August 2009 and is used regularly.

As for those who participate in the Tech to Teaching courses and/or the certificate program, they will be added to a site (possibly t-square or another software) where they can interact with others currently participating in Tech to Teaching programming along with those who have graduated and gotten jobs. Proposed timeline: end of Fall 2011

It seems as if advisors/PIs will not have the time to learn about all of the alternative teaching careers besides research universities but could benefit from the existence of a site to send students to. Proposed timeline: end of Summer 2012, may end up just being added to CETL4Students.

Lastly, we plan to create a site for teaching mentors to share with each other. This may be a t-square site or other software. Planned timeline: end of Summer 2011

• Fac Dev activities and TS-FD online support site: It seems as if advisors/PIs will not have the time to learn about all of the alternative teaching careers besides research universities but could benefit from the existence of a site to send students to. Proposed timeline: end of Summer 2012. This may end up just being added as a faculty entry point to CETL4Students.

Lastly, we plan to create a site for teaching mentors to share with each other. This may be a t-square site or other software. Planned timeline: end of Summer 2011

• K-12 Pathway status
  
  o Pieces ahead of schedule
    
    ▪ Additional section offered, CETL 4001: fall 2009, spring 2010
    
    ▪ Additional section offered, CETL 4002: spring 2010
  
  o Pieces on schedule
- REU/RET participation (Teaching SURE): 9 students in summer 2010
- Retreats for new teachers participating through the NOYCE programs affiliated with Tech to Teaching have been offered, but students completing the pathway through other means are not yet integrated into these retreats. The retreat is a full day event with guest speakers, resource and professional development sessions, and roundtable discussions.

Current progress towards implementing individual activities supporting each of the five programming elements of Tech to Teaching (advising, coursework, mentoring, immersion, and induction into the community) is described in detail in the sections below.

3.a. Advising

At both the undergraduate and graduate levels, advising activity continues at a substantial level. The number of students being advised is down somewhat from last year, but this in part due to the fact that two of the advisors were on leave for several months each during the reporting period for this 2010 annual report. There is still a significant demand among students for Tech to Teaching advising appointments. Currently, all tracked advising activity related to Tech to Teaching occurs through positions under the CETL umbrella and in the Office of Undergraduate Studies.

3.a.i. K-12 pathway advising

Undergraduate advising activity begins with information sessions at events for potential and for new students at Georgia Tech. This includes information pamphlet distribution and/or a staffed booth at career fairs and orientation types of events. Students are also directed to the undergraduate advisor via a check-box on the GT application form indicating areas of potential career interest.

Beth Spencer (Office of the Provost: Undergraduate Studies) provides advising for undergraduate students, graduate students, and alumni who are interested in pursuing a teaching career and/or seeking advice about their teaching-related job searches. Students have continued to take advantage of this advising opportunity, demonstrated by the large number of advisees and appointments during the 2009-2010 school year. This data is provided in Table 3 below. The 2009 data is not broken down by semester because advising appointments were not tracked by specific date at that time. It should also be noted that the SU10 counts are lower than usual because Beth Spencer was on leave during a large portion of the SU10 semester.

Table 3: K-12 advising - provided by Beth Spencer

<table>
<thead>
<tr>
<th>Beth Spencer:</th>
<th># Advisees:</th>
<th># Advising Appointments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA09, SU09, &amp; SP09:</td>
<td>196</td>
<td>265</td>
</tr>
<tr>
<td>SP10:</td>
<td>83</td>
<td>99</td>
</tr>
</tbody>
</table>
3.a.ii. Higher Education pathway advising

Graduate advising activity comes from several channels. Students who attend (a) *Tech to Teaching* workshop(s) or take (a) course(s) learn about our advising/consulting services and often "self-refer" during and after the event or course. CETL informs Graduate Student and/or TA Coordinators in the departments about CETL programs, services, and resources including *Tech to Teaching* and its advising services, and those individuals also refer students for advising. CETL hosts or presents at several large events including the campus-wide TA Orientation (300 students), Graduate Student Orientation (1000+ students) and Resource Fair, International TA Orientation (50 - 75 students), International Graduate Student Orientation (ask Donna for # if needed). *Tech to Teaching* and advising services are advertised at those events. In addition, CETL does guest presentations in various departments such as workshops, presentations that are part of TA development programs or courses or as part of first year graduate seminars. Most relate to *Tech to Teaching* in some way and at these we always advertise CETL programs and resources, including *Tech to Teaching* and its advising services.

Dr. Lydia Soleil provides advising for graduate students who are interested in pursuing a teaching career and/or seeking advice about their academic job searches. She also provides classroom observations and/or mid-term evaluations and consultations for graduate student instructors. Dr. Karen Head provides advising regarding graduate student academic writing and presentation skills, including feedback on academic job search materials, interviewing, and presentation skills needed for academic interview components. Most students who request an appointment with Dr. Soleil are able to be seen with 1 to 2 weeks of their request.

Table 4 shows the advising activity for Drs. Soleil and Head during the 2009-2010 school year.

The 2009 data is not broken down by semester because advising appointments were not tracked by specific date at that time. It should also be noted that the SP10 & SU10 counts are lower than usual for Dr. Soleil because she was on leave for the majority of these two semesters.

<table>
<thead>
<tr>
<th></th>
<th>Dr. Lydia Soleil</th>
<th>Dr. Karen Head</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># Advisees:</td>
<td># Advising</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appointments:</td>
</tr>
<tr>
<td>FA09, SU09, &amp; SP09:</td>
<td>41</td>
<td>60</td>
</tr>
<tr>
<td>SP10:</td>
<td>12</td>
<td>14</td>
</tr>
</tbody>
</table>

| Totals:               | 298             | 383            |

29
A few success stories shared by advisees:

- *Tech to Teaching* students have reported taking jobs at Georgia Gwinnett College, Howard High School (Macon, GA), Davidson College, a university in Thailand, Shorter College, and West Point.

- One student who got a TT faculty job at Shorter College in Rome, GA said that he used his course design in the interview and even though he had only been a TA (not an instructor) and it was a TT job with no research requirement - all teaching, he got it. The course design course helped him with the negotiating process too.

- Two course design students presented their designs at conferences (one in 2009, one in 2010). One student reported that faculty attending the conference were asking her when she was graduating and would be on the job market.

- One student submitted her course design to the Engineering to the National Conference in Engineering Education in Thailand.

- One student’s pilot practicum in S2010 at Agnes Scott was very successful, and led to her offering a workshop for AS faculty on *Tech to Teaching*. We are working on adding them as a partner institution. Her mentor sat on a panel of faculty career options.

### 3.b. Coursework

The content delivery components of the *Tech to Teaching* projects are housed within CETL. These components included both for-credit courses and regular workshops delivered as an informal seminar series. The coursework and workshops form an important element of both the K-12 and higher education pathways of *Tech to Teaching*, as they represent the main vehicle for content delivery of teaching and learned related information.

A substantial increase in course offerings occurred over the 2009 – 2010 school year. In the time period covered in the 2009 annual report (SP09 & SU09), 2 undergraduate level and 2 graduate level courses were offered through *Tech to Teaching*. During the three semesters covered in this report (FA09, SP10 & SU10), 9 undergraduate level and 13 graduate level courses were offered. It should be noted that two courses included in the count of 13 graduate level courses are not new, but were not included in the 2009 annual report.

#### 3.b.i. Summary of course & workshop development process

Update on course offerings:
New schedule for course offering starting this fall 2010:
Every Spring: 8802 TL (changing to 3 units from 2 unit and adding letter grade option in 2011)
Every Fall: 8802 CD (changing to 3 units from 2 unit and adding letter grade option in 2011)
All terms: PRACTICUM- 8803 PR and Immersion-IMM

Update on workshop offerings:
Topics for workshops are based on what is asked for on evaluations from past workshops and interests/input from current TA Fellows as well as popular topics. We are seeing a decrease in attendance from last year, perhaps due to students choosing the coursework instead.

Higher Education Teaching Certificate
There are two levels where the students can receive recognition: completion of the first three steps (Level A) or completion of all five steps (Level A and B). Students can proceed at the pace and to the step or level that they desire. The certificate program is meant to be a flexible, so individuals may progress through it in different ways based on previous teaching experience, career goals, home department programs and policies, and other factors and in some cases may receive an "alternative" certification.

CERTIFICATE LEVEL A

Step 1: Introductory Experience
Graduate students must first serve for two terms as a Graduate Teaching Assistant (GTA) for a laboratory and/or recitation section at Georgia Tech. Equivalencies are available for those who previously served as TA elsewhere or as an undergraduate or have high school or other direct teaching experience. Options are available for graduate students who do not have the opportunity to be a GTA in their home department.

Step 2: CETL 8803 TL Foundations of Teaching & Learning (3 unit graduate-level course)
This course focuses on the knowledge and skills necessary for planning and facilitating effective instruction, including: educational psychology, lesson planning, and delivery techniques. Individuals will both give and receive peer feedback from the community of learners in the course.

Step 3: CETL 8803 PR Mentored Teaching Practicum (3 unit graduate-level course)
Students will work with a faculty mentor at Georgia Tech or a nearby institution to gain an inside view of the practicalities of teaching. They will have the opportunity to teach both mini-lessons and full class periods, do other teaching-related tasks (e.g. writing homework or exam questions), get feedback on their performance from various sources, and discuss various aspects of teaching with their mentor and a learning community of students also doing the practicum that term. There is also a focus on learning more about faculty careers in academia and preparing for the academic job search.

CERTIFICATE LEVEL B
Step 4: CETL 8803 CD Course Design (3 unit graduate-level course)
Individuals in this course will have the guided experience of designing their own college-level course while both giving and receiving peer feedback from the community of learners in the course. Participants will leave with a mostly designed course and a syllabus for a course of their choosing in a context of their choosing.

Step 5: CETL 8801 IMM Teaching Immersion (1 unit graduate level course)
Students will teach their own college-level course as the instructor of record (a paid position) at Georgia Tech or a nearby partner institution (based on availability). Graduate students will have the opportunity to get feedback on their performance from various sources and discuss various aspects of teaching with their mentor and a learning community of students also doing the immersion that term.

3.b.ii. CETL courses
CETL offered a total of 22 courses, 9 at the undergraduate level and 13 at the graduate level, during the FA09, SP10, and SU10 semesters. This represents a substantial increase over the portfolio of course offerings during the SP09 & SU09 semesters, in which only two undergraduate level and two graduate level courses were offered. CETL course offerings for the 2009-2010 school year were:

- CETL 4001: Principles of Learning and Teaching I (2 sections in FA09, 2 sections in SP10, and 1 section in SU10)
- CETL 4002: Principles of Learning and Teaching II (1 section in FA09, 2 sections in SP10)
- CETL 4803 S: Special Topics (1 section in SP10)
- CETL 8711 A & S: STEP Summer training (2 sections in SU10)
- CETL 8712: STEP Seminar (1 section in FA09, 1 section in SP10)
- CETL 8721: Academic Writing (1 section in FA09, 1 section in SP10)
- CETL 8741 A: Academic Presentations (1 section in SP10)
- CETL 8801: Special Topics (1 section in FA09)
- CETL 8801 IMM: Special Topics: Immersion (student teaches course as instructor of record) (1 section in SP10)
- CETL 8802/8803 PR: Special Topics: Teaching Practicum (1 section in FA09, 1 section in SP10)
- CETL 8802 TL: Special Topics: Fundamentals of Teaching and Learning in Higher Education (1 section in FA09, 1 section in SP10)

The content and experiences provided by these courses serves to satisfy two of the major Tech to Teaching objectives outlined in the grant:

- Goal #1, Objective 1: “provide students with easy access to information about teaching careers”
- Goal #2, Objective 1: “students will possess the knowledge, skills, and dispositions necessary for teaching”
A total of 253 students enrolled in these courses; 8 students withdrew from these courses, and the remaining 245 students all passed their respective CETL courses. Students in the majority of these courses found their instructors to be effective; interpolated median scores on the course survey item pertaining to overall instructor effectiveness ranged from 4.0 to 5.0 for all but one of these 21 courses. This data is presented in Table 5.

Table 5: CETL course enrollment, pass rates, and instructor effectiveness ratings

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Semester</th>
<th># Students Passing Course</th>
<th>Rating for “Effective Instructor” Item (on a 1-5 scale)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CETL 4001 A*</td>
<td>FA09</td>
<td>19/21 (2 Ws)</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>FA09</td>
<td></td>
<td>4.0</td>
</tr>
<tr>
<td>CETL 4001 A</td>
<td>SP10</td>
<td>21/21</td>
<td>4.7</td>
</tr>
<tr>
<td>CETL 4001 A*</td>
<td>SU10</td>
<td>11/11</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>SU10</td>
<td></td>
<td>5.0</td>
</tr>
<tr>
<td>CETL 4001 B</td>
<td>FA09</td>
<td>10/11 (1 W)</td>
<td>4.0</td>
</tr>
<tr>
<td>CETL 4001 B</td>
<td>SP10</td>
<td>23/23</td>
<td>4.5</td>
</tr>
<tr>
<td>CETL 4002 A</td>
<td>FA09</td>
<td>6/6</td>
<td>5.0</td>
</tr>
<tr>
<td>CETL 4002 A</td>
<td>SP10</td>
<td>8/9 (1 W)</td>
<td>3.0</td>
</tr>
<tr>
<td>CETL 4002 C</td>
<td>SP10</td>
<td>2/3 (1 W)</td>
<td>5.0</td>
</tr>
<tr>
<td>CETL 4803 S</td>
<td>SP10</td>
<td>6</td>
<td>4.8</td>
</tr>
<tr>
<td>CETL 8711 A</td>
<td>SU10</td>
<td>16/16</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>SU10</td>
<td></td>
<td>4.8</td>
</tr>
<tr>
<td>CETL 8711 S</td>
<td>SU10</td>
<td>2/2</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>SU10</td>
<td></td>
<td>5.0</td>
</tr>
<tr>
<td>CETL 8712 A</td>
<td>FA09</td>
<td>14/14</td>
<td>4.8</td>
</tr>
<tr>
<td>Course Code</td>
<td>Term</td>
<td>Enrollment</td>
<td>Rating</td>
</tr>
<tr>
<td>--------------</td>
<td>------</td>
<td>------------</td>
<td>--------</td>
</tr>
<tr>
<td>CETL 8712 A</td>
<td>SP10</td>
<td>12</td>
<td>4.8</td>
</tr>
<tr>
<td>CETL 8721 A</td>
<td>FA09</td>
<td>16/16</td>
<td>4.9</td>
</tr>
<tr>
<td>CETL 8721 A</td>
<td>SP10</td>
<td>14/16 (2 Ws)</td>
<td>4.9</td>
</tr>
<tr>
<td>CETL 8741 A</td>
<td>SP10</td>
<td>15/16 (1 W)</td>
<td>4.8</td>
</tr>
<tr>
<td>CETL 8801</td>
<td>FA09</td>
<td>14/14</td>
<td>4.9</td>
</tr>
<tr>
<td>CETL 8801 IMM*</td>
<td>SP10</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CETL 8802 PR*</td>
<td>FA09</td>
<td>3/3</td>
<td>5.0</td>
</tr>
<tr>
<td>CETL 8803 PR*</td>
<td>SP10</td>
<td>6</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.8</td>
</tr>
<tr>
<td>CETL 8802 TL*</td>
<td>FA09</td>
<td>11/11</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>FA09</td>
<td></td>
<td>4.9</td>
</tr>
<tr>
<td>CETL 8802 TL*</td>
<td>SP10</td>
<td>15</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4.2</td>
</tr>
</tbody>
</table>

* These courses have two instructors, each with his/her own effectiveness rating.

Detailed information about each of the courses is provided below, including the following:

- Course Description (including content, structure, topics covered, and means by which Tech to Teaching objectives were achieved)
- Course Enrollment & Student Performance (including enrollment figures, grades, activities/assignments, and evaluation methods)
- Course Evaluations (including student ratings of various aspects of the course and instructor)

3.b.ii.1 K-12 pathway CETL courses

**CETL 4001: Principles of Learning and Teaching I**

CETL 4001 Course Description:

- Basic educational psychology course
• Accepted by Kennesaw State University as partial fulfillment of MAT program requirements
• Addresses the Tech to Teaching objective that “students will possess the knowledge, skills, and dispositions necessary for teaching (Goal #2, Objective 1)” by:
  1. Providing information on a wide range of educational issues and theories:
     o Development of Cognition and Language
       ▪ Includes theories of Piaget and Vygotsky
     o Personal, Social and Moral Development
     o Learner Differences
       ▪ Includes differences related to intelligence, SES, culture, and gender
     o Learners with Exceptionalities and Learner Diversity
     o Behaviorism and Social Cognitive Theory
     o Cognitive Views of Learning, including Constructing Knowledge and Complex Cognitive Processes
  2. Delivering the information covered in the Georgia Assessments for the Certification of Educators® (GACE™) Professional Pedagogy exam

**CETL 4001 Course Enrollment & Student Performance – FA09:**

• Two sections of this course were offered during FA09.
  o Twenty-nine students completed this course during FA09.
  o Three students withdrew from this course, and three students had incompletes.
  o Of those 29 students who completed the course, 26 (90%) earned As and three (10%) earned Bs.

**CETL 4001 Course Enrollment & Student Performance – SP10:**

• Two sections of this course were offered during SP10.
  o 44 students completed this course during SP10.
  o Of those 44 students who completed the course, 40 (91%) earned As and 4 (9%) earned Bs.

**CETL 4001 Course Enrollment & Student Performance – SU10:**

• One section of this course was offered during SU10.
  o 11 students completed this course during SU10.
  o Of those 11 students who completed the course, 9 (82%) earned As and 2 (18%) earned Bs.

**CETL 4001 Course Enrollment & Student Performance – General info:**

• Course activities and assessments were as follows:
  o Testing of knowledge gained in course with a midterm and final exam, plus weekly online self-assessment quizzes.
Students asked to think critically about and reflect on course content in a weekly journal as well as an educational philosophy reflection paper.

Students encouraged to investigate their own interests with a current issues paper on an educational topic of their choice.

Presentation skills developed and assessed with an in-class presentation on the current issue topic.

- Letter grades are calculated based on successful completion of assignments, exam performance, and attendance/class participation.
- Detailed information on course assignments and evaluations of learning objectives is located in Appendix A. Specific assignment descriptions and rubrics are provided in Appendices B, C & D.

- Pre- and Post-course content test scores
  - A test covering principles of teaching and learning as given to students at the beginning and again at the end of the course (for the two SP10 sections and the SU10 section only). Item content categories and the number of items within each category are shown in Table 6.

### Table 6: CETL 4001 content test: Item categories and counts within each category

<table>
<thead>
<tr>
<th>Item Category</th>
<th># Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sociocultural view of development: The work of Lev Vygotsky</td>
<td>1</td>
</tr>
<tr>
<td>Behaviorism - operant conditioning</td>
<td>4</td>
</tr>
<tr>
<td>Characteristics of beginning teachers</td>
<td>1</td>
</tr>
<tr>
<td>Effective instruction for students placed at risk</td>
<td>1</td>
</tr>
<tr>
<td>Effects of ability grouping</td>
<td>1</td>
</tr>
<tr>
<td>Information processing</td>
<td>1</td>
</tr>
<tr>
<td>Language development</td>
<td>1</td>
</tr>
<tr>
<td>Learner diversity - gender, culture, intelligence and SES [socioeconomic status]</td>
<td>4</td>
</tr>
<tr>
<td>Personal, social and moral development (Erikson &amp; Kohlberg)</td>
<td>4</td>
</tr>
<tr>
<td>Piaget's theory of intellectual development</td>
<td>3</td>
</tr>
<tr>
<td>Provisions of IDEA</td>
<td>3</td>
</tr>
<tr>
<td>Types of professional knowledge</td>
<td>1</td>
</tr>
<tr>
<td>Types of research</td>
<td>2</td>
</tr>
<tr>
<td>Working with learners with exceptionalities</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total: 29**

- Pre-test vs. Post-test performance comparison
  - Changes in % correct were analyzed to assess the extent of student learning on these items.
  - The number of items for each course is reported by category in Table 7; categories are based on the size of the change in percent from pre-test to post-test. The
change from pre-test to post-test was not assessed if the pre-test score for the class was 75% or higher.

Table 7: Items categories by % change from pre-test to post-test

<table>
<thead>
<tr>
<th>Percentage Change</th>
<th>SP10: 4001A</th>
<th>SP10: 4001B</th>
<th>SU10: 4001A</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A (Pre-test % correct of 75% or higher):</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Increase of 50 or more percentage points:</td>
<td>3</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Increase of 25-49 percentage points:</td>
<td>9</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Increase of 1-24 percentage points:</td>
<td>7</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>no change:</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Decrease of 1-20 percentage points:</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

- As an effort to directly address *Tech to Teaching*, students in the SP10 semesters were asked the following question on the pre- and post-test: “How interested are you in pursuing a career in teaching?” Student responses reflected stability in the overall level of interest present among students in the class, although the data was aggregated, so stability within individual students over the course of the semester cannot be assessed. Student responses to this item are provided in Table 8.

Table 8. SP10 CETL 4001 students level of interest in teaching careers.

<table>
<thead>
<tr>
<th>How interested are you in pursuing a career in teaching?</th>
<th>4001 A – Pre Test</th>
<th>4001 A – Post Test</th>
<th>4001B – Pre Test</th>
<th>4001 B – Post Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses :</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. not very interested</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>b. somewhat interested</td>
<td>7</td>
<td>5</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>c. interested</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>d. very interested</td>
<td>10</td>
<td>9</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>N = 21 (20 for post)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N = 23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section A: three students from this section responded to the Course Instructor Opinion Survey (CIOS). Two instructors taught this course, so two sets of CIOS ratings were collected.

- Instructor 1: This instructor earned moderate to moderately high course ratings, with interpolated median score ranging from 3.3 to 4.3. Students provided an interpolated median response of 3.3 to the item “course seemed well planned and organized,” which corresponds to a very slight level of agreement. This is an area in which there is room for improvement for this instructor. Students provided interpolated median responses of 3.8 to the items “Good job covering course objectives/content” and “Explained complex material clearly,” indicating that they are in relative agreement that the instructor performed well in these areas. Slightly higher ratings of 4.3 were provided for the items pertaining to appropriateness of coverage and difficulty of exams. Students also generally agreed that that instructor was an effective teacher overall (interpolated median score of 4.0).

- Instructor 2: This instructor earned moderately high course ratings, with interpolated median score ranging from 3.8 to 4.3. Students provided favorable ratings to the 2nd instructor on organization, covering course content, and explaining complex material clearly (ratings of 4.0, 4.3, and 4.0 respectively). Scores regarding appropriateness of coverage and difficulty of exams were indicated moderate agreement (ratings of 3.8 for both). Students generally agreed that this instructor was an effective teacher overall (interpolated median score of 4.0).

- For both instructors, students were moderately pleased with all aspects of the course; the only item for which an interpolated median score of lower than 3.5 was given was the organization item for instructor 1. The overall effectiveness rating for both instructors was 4.0, suggesting that students agreed that the instructors for this course were both effective. It should be noted that the low response rate for this section prevents strong conclusions from this data.

Section B: Six students from this section responded to the CIOS. This instructor earned moderately high ratings, with interpolated median ratings ranging from 3.5 to 4.5. Students agreed that the course seemed well planned and organized (interpolated median score of 4.0). They expressed slightly lower levels of agreement with items pertaining to coverage of course content and explaining complex material clearly (interpolated median scores of 3.8 and 3.5 respectively). There is some room for improvement for this instructor in explaining complex material to students. Students provided favorable ratings of the instructor’s approachability (interpolated median score of 4.5). Students agreed that this instructor was an effective teacher overall (interpolated median rating of 4.0).

Section A: 11 of the 21 students from this section responded to the CIOS.

- Students agreed that the course was well-organized, the instructor did a good job covering course content, and the instructor was approachable and willing to assist students (interpolated median ratings of 4.7, 4.6, and 4.7, respectively).

- Students agreed that class attendance was important for learning the material, and exams covered course content (interpolated median ratings of 4.8 and 4.6, respectively).
• Students were slightly less pleased with the instructor’s ability to explain complex material clearly and the appropriateness of the number of course assignments (interpolated median ratings of 4.1 for both items).
• Students were pleased with the instructor in general, providing an interpolated median rating of 4.7 for the instructor’s overall effectiveness.

Section B: 14 of the 23 students from this section responded to the CIOS.
• Students provided moderate levels of agreement that the course was well-organized, the instructor did a good job covering course content, the instructor explained complex material clearly, and the instructor was approachable and willing to assist students (interpolated median ratings of 4.6, 4.5, 4.5, and 4.6, respectively).
• Students believed that class attendance was important in promoting the learning of material (interpolated median rating of 4.7).
• Students were fairly pleased with this instructor’s overall effectiveness (interpolated median rating of 4.5).

CTEL 4001 Course Evaluations – SU10:

• Section A: 11 of the 21 students from this section responded to the CIOS.
  • Students agreed that the course was well-organized, the instructor did a good job covering course content, and the instructor was approachable and willing to assist students (interpolated median ratings of 4.7, 4.6, and 4.7, respectively).
  • Students agreed that class attendance was important for learning the material, and exams covered course content (interpolated median ratings of 4.8 and 4.6, respectively).
  • Students were slightly less pleased with the instructor’s ability to explain complex material clearly and the appropriateness of the number of course assignments (interpolated median ratings of 4.1 for both items).
  • Students were pleased with the instructor in general, providing an interpolated median rating of 4.7 for the instructor’s overall effectiveness.

• Section B: 14 of the 23 students from this section responded to the CIOS.
  • Students provided moderate levels of agreement that the course was well-organized, the instructor did a good job covering course content, the instructor explained complex material clearly, and the instructor was approachable and willing to assist students (interpolated median ratings of 4.6, 4.5, 4.5, and 4.6, respectively).
  • Students believed that class attendance was important in promoting the learning of material (interpolated median rating of 4.7).
  • Students were fairly pleased with this instructor’s overall effectiveness (interpolated median rating of 4.5).

CTEL 4002: Principles of Learning and Teaching II

CTEL 4002 Course Description:
1. Continuation of CETL 4001
2. Course has a lecture component as well as a three hour/week in-school teaching program
3. Accepted by Kennesaw State University as partial fulfillment of MAT program requirements
4. Addresses the Tech to Teaching objective that “students will possess the knowledge, skills, and dispositions necessary for teaching (Goal #2, Objective 1)” as well as the objective to “provide students with easy access to information about teaching careers (Goal #1, Objective 1)” [note: summer internship programs will serve to further address these objectives] by:
   • Providing information on practical issues related to teaching:
     o Educational psychology
     o Motivating students
     o Classroom instruction & management
     o Instructional design
     o Deliver techniques
     o Problem solving & critical thinking strategies
     o Instructional strategies, including:
       ▪ Direct instruction
       ▪ Lecture
       ▪ Lecture discussion
       ▪ Guided discovery
       ▪ Cooperative learning
       ▪ Technology integration
   • Continuing in the delivery of information covered in the Georgia Assessments for the Certification of Educators® (GACE™) Professional Pedagogy exam

CETL 4002 Course Enrollment & Student Performance – FA09:

• Six students completed this course during FA09.
  o All six (100%) of the students who completed this course earned As.

CETL 4002 Course Enrollment & Student Performance – SP10:

• Two sections of this course were taught during SP10.
  o 10 students completed this course during SP10.
  o Two students withdrew from this course during SP10.
  o 9 (90%) of the 10 students who completed this course earned As, and 1 (10%) student who completed this course earned a B.

CETL 4002 Course Enrollment & Student Performance – General info:

• The major course activity was the in-classroom component, which allows students to gain real-world teaching experience with three hours per week in a classroom
• Course outcomes were assessed in the following ways:
  o Mastery of course knowledge assessed with midterm and final exams
  o Knowledge and skills gained through in-school teaching experience assessed with a field experience log & school context portrait.
Teaching skills assessed through instructor and peer evaluation of a microteaching presentation

- Detailed information on course assignments and evaluations of learning objectives is located in Appendix A. Specific assignment descriptions and rubrics are provided in Appendices E & F.
- The in-classroom practicum is a major component of this course. Students in this course have completed practicums at the Lovett School, the Atlanta Girls School, Carver School of Technology (Atlanta Public Schools), and Carver School of Health Sciences and Research (Atlanta Public Schools). Students who completed the practicum tutored in their content areas and also developed and taught “mini lessons” to the K-12 students. The placement of the T3 participants is noted in the table below.

<table>
<thead>
<tr>
<th>Student</th>
<th>Major</th>
<th>Year</th>
<th>Subject</th>
<th>Grade Band</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mathematics</td>
<td>3rd</td>
<td>Mathematics</td>
<td>High 9-12</td>
<td>Carver SOT (Student dropped course)</td>
</tr>
<tr>
<td>2</td>
<td>History, Technology, and Society</td>
<td>4th</td>
<td>History</td>
<td>High 9-12</td>
<td>North Atlanta HS* - APS</td>
</tr>
<tr>
<td>3</td>
<td>Biology</td>
<td>3rd</td>
<td>Biology</td>
<td>High 9-12</td>
<td>Atlanta Girls School</td>
</tr>
<tr>
<td>4</td>
<td>Biomedical Engineering</td>
<td>4th</td>
<td>Biology, Chemistry</td>
<td>High 9-12</td>
<td>National Environmental Education Assoc. - multiple APS Schools</td>
</tr>
<tr>
<td>5</td>
<td>Biology</td>
<td>2nd</td>
<td>Biology</td>
<td>Elementary K-5</td>
<td>Centennial Place ES* - APS</td>
</tr>
<tr>
<td>6</td>
<td>Science, Technology, &amp; Culture</td>
<td>3rd</td>
<td>Kindergarten, 1st Grade</td>
<td>Elementary K-5</td>
<td>Centennial Place ES* - APS</td>
</tr>
<tr>
<td>7</td>
<td>Chemistry</td>
<td>5th</td>
<td>Chemistry</td>
<td>High 9-12</td>
<td>North Atlanta HS* - APS</td>
</tr>
<tr>
<td>8</td>
<td>Management</td>
<td>3rd</td>
<td>Mathematics</td>
<td>High 9-12</td>
<td>North Atlanta HS* - APS</td>
</tr>
<tr>
<td>9</td>
<td>Management</td>
<td>4th</td>
<td>Math or General</td>
<td>High 9-12</td>
<td>Tri-Cities HS - Fulton</td>
</tr>
<tr>
<td>10</td>
<td>Management</td>
<td>4th</td>
<td>Science or General</td>
<td>Elementary K-5</td>
<td>Jasper Elementary - Pickens County</td>
</tr>
<tr>
<td>11</td>
<td>Biology</td>
<td>4th</td>
<td></td>
<td>High 9-12</td>
<td>The Lovette School</td>
</tr>
</tbody>
</table>

*CETL 4002 Course Evaluations – FA09:

- Two students who completed this course in FA09 responded to the CIOS.
- This course is primarily an in-school teaching practicum, so these ratings pertain more to the “skills” part of objective 1 for Goal #2. Students in this course were very pleased with the
instructor in general, giving an interpolated median response of 5.0 to the item “The instructor was an effective teacher.” Both students responding to the statement “Explained complex material clearly” strongly agreed with it (interpolated median rating of 5.0). Students also expressed strong agreement with the items pertaining to organization of the course, coverage of course objectives, and appropriateness of coverage and difficulty of exams (interpolated median rating of 5.0). It should be noted that the low response rate for this course prevents strong conclusions from this data.

**CETL 4002 Course Evaluations – SP10:**

- **Section A:**
  - Two of the 8 students who completed this course in SP10 responded to the CIOS.
  - This course is primarily an in-school teaching practicum, so these ratings pertain more to the “skills” part of objective 1 for Goal #2. The students in this course who completed the survey expressed neutral feelings regarding the quality of the instructor in general, giving an interpolated median response of 3.0 to the item “The instructor was an effective teacher.”
  - Students agreed that the instructor explained complex material clearly, was approachable and willing to assist students, and encouraged students to consult with him/her, provided interpolated median ratings of 4.0 for each of these items.
  - Students felt that the class was somewhat unorganized, providing an interpolated median rating of 2.5 to the item “course seemed well planned and organized.”
  - It is unwise to draw strong conclusions from these evaluations, given the limited number of respondents.

- **Section C:**
  - Both students who completed this course in SP10 responded to the CIOS.
  - This course is primarily an in-school teaching practicum, so these ratings pertain more to the “skills” part of objective 1 for Goal #2. The students in this course who completed the survey expressed quite positive feelings regarding the quality of the instructor in general, giving an interpolated median response of 5.0 to the item “The instructor was an effective teacher.”
  - These two students were quite pleased with all aspects of the course, providing interpolated median responses of 4.5 or 5.0 for all survey items.

**CETL 4803 S: Special Topics: Foundations for Science Teaching**

**CETL 4803 Course Description:**

- The primary focus of this course is to prepare students for teaching the earth, life, and/or physical sciences at the middle and secondary levels.
- Addresses the Tech to Teaching objective that “students will possess the knowledge, skills, and dispositions necessary for teaching (Goal #2, Objective 1)” by:
  - Delivering practical and theoretical information related to science teaching, including:
    - Instructional strategies for increasing student learning of science concepts and processes, including the use of technology
Techniques for critically evaluating instructional resources
Lesson planning: classroom and laboratory
Safety and equipment management in the science laboratory
District and national standards in science education
Assessment of student learning
Promoting scientific inquiry in the classroom

CETL 4803 Course Enrollment & Student Performance – SP10:

- Six students completed this course during SP10. All 6 (100%) of these students earned passing grades (this was a pass/fail course).

CETL 4803 Course Enrollment & Student Performance – General info:

- Student knowledge and skill acquisition were evaluated through the following evaluations and activities:
  - Midterm and final exams
  - Interactive science notebooks and lab reports
  - Electronic science teaching portfolio

CETL 4803 Course Evaluations – SP10:

- Three of the six students who completed this course provided responses on the CIOS.
- Students were generally quite pleased with this class, providing interpolated median ratings of 4.8 to all but one survey item.
- The on survey item on which students provided a slightly lower response was “class attendance important in promoting learning of material” (interpolated median score of 4.0).

3.b.ii.2 Higher education pathway CETL courses

CETL 8711 A & S: Student and Teacher Enhancement Partnership (STEP) Summer Training

CETL 8711 A & S Course Description:

- This course is required for all STEP fellows, and is run more like a training program rather than a typical course.
- Addresses the Tech to Teaching objective that “students will possess the knowledge, skills, and dispositions necessary for teaching (Goal #2, Objective 1)” by providing information on the following practical, teaching-relevant topics:
  - Learning Theory
  - Lesson Planning
Teaching/presentation skills (developed and assessed by requiring students to give multiple teaching presentations to the class)
- Teaching strategies
- Classroom assessment techniques (CATs)
- Giving good feedback/asking good questions
- Having an equitable classroom
- One-on-one interactions with students (e.g., mentoring, tutoring, office hours)
- Grading
- Motivating K-12 students
- Working with at-risk students
- Sexual harassment issues
- No Child Left Behind (NCLB) standards
- Adequate Yearly Progress (AYP) standards

_CETL 8711 A & S Course Enrollment & Student Performance – SU10:

- 16 students completed section A of this course and 2 students completed section S of this course during SU10.
- All 18 (100%) students who completed the course earned passing grades (this was a pass/fail course).

_CETL 8711 A & S Course Evaluations – SU10:

- Section A, Instructor 1: 6 of the 16 students from this section responded to the CIOS for instructor 1.
  - These students agreed that the instructor had a high level of overall effectiveness; all 6 students provided a rating of 5.0 for this item.
  - Students were pleased with all other aspects of the course evaluated on CIOS; interpolated median ratings of 4.9 or 5.0 were provided for all items.
- Section A, Instructor 2: 7 of the 16 students from this section responded to the CIOS for instructor 2.
  - All students agreed or strongly agreed that the instructor was an effective teacher; the interpolated median rating on this item was 4.8.
  - Students were generally pleased with all other aspects of the course evaluated on CIOS; interpolated median ratings of 4.8 – 5.0 were provided for all items.
  - Additionally, all students provided ratings of agree or strongly agree on all items except for the appropriateness of number of course assignments, on which one student provided a neutral rating and one student disagreed.
- Section S, Instructor 1: 1 of the 2 students from this section responded to the CIOS for instructor 1.
  - This student was pleased with all aspects of the course, providing a rating of 5.0 for all items, except for the two items pertaining to exams, for which the student responded N/A.
- Section S, Instructor 2: 1 of the 2 students from this section responded to the CIOS for instructor 2.
This student was pleased with all aspects of the course, providing a rating of 5.0 for all items, except for the two items pertaining to exams, for which the student responded N/A.

**CETL 8712 A: Student and Teacher Enhancement Partnership (STEP) Seminar**

**CETL 8712 Course Description:**

- This course serves as an opportunity for community-building among STEP participants.
- Addresses the Tech to Teaching objective that “students will possess the knowledge, skills, and dispositions necessary for teaching (Goal #2, Objective 1)” as well as the objective to “provide students with easy access to information about teaching careers (Goal #1, Objective 1)” by:
  - Addressing concerns/questions of the STEP fellows as they arise during their time teaching in local high schools, allowing students to improve their teaching as they progress through the STEP program
  - Providing additional training to the STEP fellows as needed
  - Establishing a weekly forum for STEP fellows to maintain communication with each other and establish a community

**CETL 8712 Course Enrollment & Student Performance – FA09:**

- Fourteen students completed this course in FA09.
  - All 14 (100%) students who completed this course passed the course (this was a pass/fail course).

**CETL 8712 Course Enrollment & Student Performance – SP10:**

- 12 students completed this course in SP10.
  - All 12 (100%) students who completed this course passed the course (this was a pass/fail course).

**CETL 8712 Course Evaluations – FA09:**

- Four of the fourteen students who completed this course responded to the CIOS. These students were happy with the instructor’s overall effectiveness, providing an interpolated median rating of 4.8 to this item. This instructor also earned high marks on explaining complex material effectively and covering course content (interpolated median ratings of 4.5 and 4.8 respectively), and moderately high marks on course organization (interpolated median rating of 4.0).

**CETL 8712 Course Evaluations – SP10:**
All twelve who completed this course responded to the CIOS. These students were happy with the instructor’s overall effectiveness, providing an interpolated median rating of 4.8 to this item.

- This instructor earned high marks on explaining complex material effectively, being approachable and willing to assist students, and covering course content (interpolated median ratings of 4.7, 4.9, and 4.7 respectively).
- Students in this course expressed moderate levels of agreement that the course was well-organized and that class attendance was important for learning the material (interpolated median ratings of 4.5 and 4.3, respectively).

CETL 8721 A: Academic Writing

CETL 8721 Course Description:

- This course is designed to aid students in furthering their academic writing skills. This course is relevant to Tech to Teaching in that teachers of many subjects will be responsible for evaluating writing of some sort, and teachers in higher education especially may be responsible for writing grant proposals, journal articles, etc.
- Addresses the Tech to Teaching objective that “students will possess the knowledge, skills, and dispositions necessary for teaching (Goal #2, Objective 1)” by:
  - Helping students develop techniques for improving preparation of proposal, theses, and dissertations
  - Establishing writing support groups that meet weekly, allowing students to give and receive writing feedback to/from their peers
  - Providing information about methods for evaluating academic writing
- Specific course topics include:
  - Identifying the communication principles and contents appropriate for various academic settings
  - Becoming an academic professional
  - Why/how academic discourse works
  - The writing process
  - Questions of style
  - Specific components of academic writing: introduction, methods, literature review, results
  - Oral defenses
  - Revising and publishing work

CETL 8721 Course Enrollment & Student Performance – FA09:

- Sixteen students completed this course in FA09.
  - All 16 (100%) students who completed this course passed the course (this was a pass/fail course).

CETL 8721 Course Enrollment & Student Performance – SP10:
• 14 students completed this course during SP10.
  o Two students withdrew from this course.
  o All 14 (100%) students who completed this course passed the course (this was a pass/fail course).

_CETL 8721 Course Enrollment & Student Performance – General info:

• Course activities include:
  o Discussion of dominant genres of academic communication and the expectations of each
  o Collaborative work in small writing groups which meet weekly
  o Exploration of techniques well-suited for various professional communication scenarios (e.g., thesis/dissertation defenses, committee meetings, etc.)
• Pass/Fail grades are assigned on the basis of the extent to which students attend class regularly and fully participate in the course activities listed above.

_CETL 8721 Course Evaluations – FA09:

• Fifteen of the 16 students who completed this course responded to the CIOS. This instructor earned high ratings, with interpolated median scores ranging from 4.4 to 4.9. Students expressed moderate to high levels of agreement that the course was well-organized, the instructor did a good job covering course content, and the instructor explained complex material clearly (interpolated median ratings of 4.8, 4.4, and 4.8 respectively). Students also gave high ratings of the instructor’s approachability and extent to which the instructor encouraged consultation with students (interpolated median ratings of 4.7 and 4.9 respectively). Students provided an interpolated median score of 4.9 to the overall effectiveness item, indicating strong agreement that the instructor of this course was an effective teacher.

_CETL 8721 Course Evaluations – SP10:

• All 14 students who completed this course responded to the CIOS.
• Students expressed high levels of agreement that the course was well-organized, the instructor did a good job covering course content, and the instructor explained complex material clearly (interpolated median ratings of 4.8, 4.7, and 4.8 respectively).
• Students also gave high ratings of the instructor’s approachability and extent to which the instructor encouraged consultation with students (interpolated median ratings of 4.7 and 4.9 respectively).
• Students provided an interpolated median score of 4.9 to the overall effectiveness item, indicating strong agreement that the instructor of this course was an effective teacher.

_CETL 8741: Academic Presentations (SP09)/CETL 8801: Special Topics: Academic Presentations (FA09)

_CETL 8741 Course Description:
• This course aims to help students improve their skills in oral academic presentations. This course is relevant to Tech to Teaching in that any type of teacher will communicate information orally as the main component of his/her job. Additionally, teachers in higher education may be expected to deliver oral presentations at conferences, departmental brown bags, etc. Good oral presentation skills are critical for teachers of all types, and this course should be helpful for individuals who wish to teach in any capacity.

• Addresses the Tech to Teaching objective that “students will possess the knowledge, skills, and dispositions necessary for teaching (Goal #2, Objective 1)” by:
  o Teaching students practical strategies for preparing, revising, and delivering oral presentations in such applications as conference talks, job talks, proposal presentations, and oral exams/defenses
  o Providing training on collecting and analyzing information suitable for audiences in each of the applications listed above
  o Specific course topics include:
    ▪ Presentation apprehensions
    ▪ Presentation skills
    ▪ Distilling content
    ▪ Use of visual aids
    ▪ Posters
    ▪ Networking
    ▪ Teaching demonstrations
    ▪ Phone interviews
    ▪ Job talks
    ▪ Conference talks
    ▪ Video conferencing
    ▪ Mastering “schmoozing”

CETL 8741 Course Enrollment & Student Performance – FA09:

• Fourteen students completed this course in FA09.
  o All 14 (100%) students who completed this course passed the course (this was a pass/fail course).

CETL 8741 Course Enrollment & Student Performance – SP10:

• 15 students completed this course during SP10.
  o 1 student withdrew from this course.
  o All 15 (100%) students who completed this course passed the course (this was a pass/fail course).

CETL 8741 Course Enrollment & Student Performance – General info:

• Course activities include:
  ▪ Discussion of dominant genres of academic communication and the expectations of each
• Collaborative work through peer-review of student presentations
• In-class practice with presentation skills; presentations will be videotaped and reviewed by the instructor and/or class
• Real-world practice with presentation skills via presentations of research in the student’s home department and/or a relevant conference

• Pass/Fail grades are assigned on the basis of the extent to which students fully participate in the course activities listed above.

*CETL 8741: Course Evaluations – FA09:*

• Thirteen of the 14 students who completed this course responded to the CIOS. This instructor earned high ratings, with interpolated median scores ranging from 4.1 to 4.9. Students expressed high levels of agreement that the course was well-organized, the instructor did a good job covering course content, and the instructor explained complex material clearly (interpolated median ratings of 4.8, 4.7, and 4.6 respectively). Students also gave high ratings of the instructor’s approachability and extent to which the instructor encouraged consultation with students (interpolated median ratings of 4.7 and 4.9 respectively). Students provided an interpolated median score of 4.9 to the overall effectiveness item, indicating strong agreement that the instructor of this course was an effective teacher.

*CETL 8741: Course Evaluations – SP10:*

• All 15 who completed this course responded to the CIOS.
• Students expressed moderately high levels of agreement that the course was well-organized, the instructor did a good job covering course content, and the instructor explained complex material clearly (interpolated median ratings of 4.6, 4.6, and 4.7 respectively).
• Students gave very high ratings of the instructor’s approachability and extent to which the instructor encouraged consultation with students (interpolated median ratings of 4.9 for both items).
• Students provided an interpolated median score of 4.8 to the overall effectiveness item, indicating strong agreement that the instructor of this course was an effective teacher.

*CETL 8801 IMM: Special Topics: Immersion*

*CETL 8801 IMM Course Description:*

• This course entails teaching a college course as instructor of record with full course responsibility, including all teaching, course management tasks, and final grade assignment.
• Addresses the Tech to Teaching objective that “students will possess the knowledge, skills, and dispositions necessary for teaching (Goal #2, Objective 1)” as well as the objective to “provide students with easy access to information about teaching careers (Goal #1, Objective 1)” by:
  o Allowing students to gain experience in a teaching situation similar to that they would encounter in a faculty position, and somewhat similar to what they would
encounter if they were to teach high school. This hands-on experience should be highly valuable in facilitating the decision as to whether the individual wants to pursue teaching as a primary career path, and should also increase the individual’s marketability for a teaching job.

*CETL 8801 IMM Course Enrollment & Student Performance – SP10:*

- One student completed this course in SP10, and this student earned a passing grade (this was a pass/fail course).

*CETL 8801 IMM Course Enrollment & Student Performance – General info:*

- Course activities include:
  - Providing feedback to students about their teaching skills through the following activities:
    - Giving and receiving peer feedback
    - Self-review of a video of themselves teaching
    - Meeting with a CETL staff member who has seen their teaching
    - Collecting midterm evaluation data from their students
  - Promoting organization, planning, and self-reflection in teaching, through the following activities:
    - 1-2 page written analysis of two observed course sessions, including self-assessment and mentor and peer feedback.
    - Teaching philosophy statement
    - Final report on overall experience
  - Providing a mentor to guide the student through the immersion experience; activities involving the mentor include:
    - Discussion prior to the start of the course regarding course syllabus, teaching contract
    - Meeting with the mentor to get feedback after teaching observations; includes a review of lesson plan and course materials for the observed classes
    - Discussion with mentor regarding final grade assignment
    - Final meeting with mentor to get overall evaluation of performance, suggestions for improvement, etc.
- Pass/Fail grades are assigned on the basis of the extent to which students fully participate in the course activities listed above.

*CETL 8801 IMM Course Evaluations – SP10:*

- One student was enrolled in this course, and this student completed the CIOS.
- This student strongly agreed that the course was well-organized, the instructor was approachable and willing to assist, and the instructor was effective overall (ratings of 5.0 for each item).
CETL 8802 TL: Special Topics: Fundamentals of Teaching and Learning in Higher Education

CETL 8802 TL Course Description:

- This course aims to equip students with the knowledge and skills needed to evaluate instructional design options and implement learner-centered teaching methods.
- Addresses the Tech to Teaching objective that “students will possess the knowledge, skills, and dispositions necessary for teaching (Goal #2, Objective 1)” by:
  - Teaching students to evaluate the effectiveness of instructional design options
  - Providing information about the learner-centered teaching paradigm
  - Helping students to design and teach lesson plans that demonstrate alignment between objectives, activities, and assessment and appropriately apply student-centered teaching principles.
  - Teaching students to evaluate the lesson plans and teaching of themselves and others and provide constructive feedback on these items
  - Specific course topics include:
    - The future of teaching and learning
    - Principles of learner-centered teaching (including social constructivism)
    - Feedback and facilitation skills
    - Learning styles
    - Learning objectives
    - Formation and assessment of learning objectives
    - Teaching methods
    - Integrative lesson planning
    - Reflective teaching

CETL 8802 TL Course Enrollment and Student Performance – FA09:

- Eleven students completed this course in FA09.
  - Two students withdrew from this course.
  - All 11 (100%) students who completed this course earned passing grades (this was a pass-fail course).

CETL 8802 TL Course Enrollment and Student Performance – SP10:

- 15 students completed this course in SP10.
  - All 15 (100%) students who completed this course earned passing grades (this was a pass-fail course).

CETL 8802 TL Course Enrollment and Student Performance – General info:

- Course Activities:
  - Doing assigned class readings and writing responses to the accompanying reading questions
  - Designing lesson plans
  - Microteaching sessions, including self-evaluation of one’s own microteaching and providing peer feedback on other students’ microteaching
• Practicing teaching skills, including facilitating and lecturing
• Self-reflecting on, and getting peer feedback on, teaching skills demonstrated in classes
• Discussing, analyzing, and evaluating readings, lectures, and/or videos on teaching and learning topics
• Forming a statement of teaching philosophy
• 40-minute class facilitation with a partner (this activity is optional)

• Student grades are determined via the grading criteria for each assignment, presented in Appendix G. Specific assignment descriptions and rubrics are provided in Appendices H, I & J.

**CETL 8802 TL Course Evaluations – FA09:**

• Eight of the 11 students who completed this course responded to the CIOS. There were two instructors for this course so two sets of CIOS ratings were collected.
  
  o Instructor 1: Students provided high ratings for this instructor, with interpolated median scores ranging from 4.2 to 5.0. Students agreed fairly strongly that the course was well organized, the instructor covered course objectives well, and the instructor explained complex material clearly (interpolated median ratings of 4.8, 4.7, and 4.5 respectively). Students agreed strongly that the instructor was an effective teacher (interpolated median rating of 4.9).
  
  o Instructor 2: Students provided high ratings for this instructor, with interpolated median scores ranging from 4.2 to 5.0. Students agreed fairly strongly that the course was well organized, the instructor covered course objectives well, and the instructor explained complex material clearly (interpolated median ratings of 4.7, 4.3, and 4.2 respectively). Students agreed that this instructor was an effective teacher (interpolated median rating of 4.5).

**CETL 8802 TL Course Evaluations – SP10:**

• All 15 students who completed this course responded to the CIOS. There were two instructors for this course so two sets of CIOS ratings were collected.
  
  o Instructor 1:
    • Students agreed fairly strongly that the course was well organized, the instructor covered course objectives well, and the instructor explained complex material clearly (interpolated median ratings of 4.6, 4.8, and 4.4 respectively).
    • Students agreed strongly that the instructor was approachable and willing to assist, encouraged students to consult with him/her, and was an effective teacher overall (interpolated median ratings of 4.9, 5.0, and 4.8, respectively).
  
  o Instructor 2 (Fourteen of the 15 students provided CIOS ratings for Instructor 2):
    • Students expressed moderate agreement that the course was well organized, the instructor covered course objectives well, and the instructor
explained complex material clearly (interpolated medina ratings of 4.6, 4.4, and 4.4, respectively).

- Students agreed strongly that this instructor was approachable and willing to assist, and encouraged students to consult with him/her (interpolated median ratings of 4.9 for both items).
- Students expressed moderate agreement that this instructor was an effective teacher (interpolated median rating of 4.2).

CETL 8803 PR: Special Topics: Mentored Teaching Practicum (SP10)/CETL 8802 PR: Special Topics: Teaching Practicum

CETL 8803/8802 PR Course Description:

- This is a highly practical and applied course in which students work with a mentor to gain real-world teaching experience, in addition to participating in an in-class component.
- Addresses the Tech to Teaching objective that “students will possess the knowledge, skills, and dispositions necessary for teaching (Goal #2, Objective 1)” as well as the objective to “provide students with easy access to information about teaching careers (Goal #1, Objective 1)” by:
  - Allowing students to experience teaching in a real college classroom
  - Providing opportunities for students to learn about teaching and academic careers from their mentor
  - Exposing students to teaching-related information during the in-class component

CETL 8803/8802 PR Course Enrollment & Student Performance – FA09:

- Three students completed this course in FA09.
  - All 3 (100%) students who completed this course passed the course (this was a pass/fail course).

CETL 8803/8802 PR Course Enrollment & Student Performance – SP10:

- Six students completed this course in SP10.
  - All 6 (100%) students who completed this course passed the course (this was a pass/fail course).

CETL 8803/8802 PR Course Enrollment & Student Performance – General info:

- Course activities include:
  - Weekly meetings with mentor, including discussions of course syllabus, personal goals, roles and responsibilities of student, scheduling, plans for class delivery (pre-delivery), discussion of class delivery (post-delivery)
  - Design and delivery of: 1) 5-minute introduction of self and research to the class; 2) 10-15 minute section of a class; 3) two full class sessions
Interview with mentor about faculty life, job search advice, etc.
Deliverables to CETL instructor include: 1) pre-class delivery form for each class delivery, 2) lesson plan for each class delivery, 3) 1-2 page analysis paper for each class delivery, to include self-assessment, feedback from peers, mentor, and CETL staff, 4) teaching philosophy statement, 5) final report on practicum experience.
An overview of course activities and requirements is provided in Appendix K.

CETL 8803/8802 PR Course Evaluations – FA09:

- One student responded to the CIOS for this course. This student provided a rating of 5.0 for the instructor’s overall effectiveness, and provided scores of 4.0 for course organization and coverage of objectives. This student’s responses ranged from 4.0 to 5.0 and indicate that he/she was pleased with the course. However, it is unwise to draw conclusions from these data due to the extremely limited sample size.

CETL 8803/8802 PR Course Evaluations – SP10:

- Of the six students who completed this course, three responded to the CIOS. Two instructors taught this course, so there are two sets of CIOS ratings.
- Instructor 1:
  - Students strongly agreed that the course was well-planned and organized, the instructor explained complex material clearly, and the instructor was approachable and willing to assist students (interpolated median ratings of 4.8, 5.0, and 5.0, respectively).
  - Students provided moderate agreement to the statement regarding the instructor doing a good job covering course objectives and content (interpolated median rating of 4.3).
  - All students agreed that the instructor was an effective teacher (ratings of 5.0 from each student).
- Instructor 2:
  - Students strongly agreed that the course was well-planned and organized, the instructor explained complex material clearly, the instructor did a good job covering course objectives/content, and the instructor was approachable and willing to assist students (interpolated median ratings of 4.8 for each of these items).
  - Students were pleased with the overall effectiveness of the instructor (interpolated median rating of 4.8).
3.b.iii. CETL workshops

CETL offered 18 workshops in FA09 and SP10 for the general graduate student audience. These general audience workshops covered topics related to the academic job search (academic job search, academic interviews, CV and cover letter, giving a teaching demo, academic faculty jobs), teaching (grading, lesson planning, teaching philosophy and portfolio, learning styles, motivating students, making learning accessible, time management for TAs, intercultural communication, using technology in the classroom), and research/communication (writing a literature review, preparing for the GT graduate symposium, writing successful grant proposals). These workshops covered a broad range of topics and were well-attended for the most part (attendance for these workshops ranged from 3 to 62 participants). These workshops were conducted by CETL personnel, were scheduled throughout the fall and spring semesters, and lasted approximately 1.5 hours each. Workshops were generally quite highly rated by participants.

Details of each workshop’s content are presented below; this section of the report follows a similar reporting format as was used in the 2009 annual report. Following each workshop content description, ratings of the workshops (as determined from the evaluation forms collected at the end of each workshop) are summarized. At the end of the workshop descriptions a summary table of workshop numerical ratings is included. In general, attendance figures and ratings for these workshops are comparable to those from the workshops described in the 2009 annual report.

Table 9. CETL workshops (FA09 & SP10)

<table>
<thead>
<tr>
<th>Workshop Title</th>
<th>Date</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grading</td>
<td>8/26/2009</td>
<td>17</td>
</tr>
<tr>
<td>Academic job search</td>
<td>9/2/2009</td>
<td>49</td>
</tr>
<tr>
<td>Lesson planning</td>
<td>9/9/2009</td>
<td>18</td>
</tr>
<tr>
<td>Teaching Philosophy and portfolio</td>
<td>9/23/2009</td>
<td>28</td>
</tr>
<tr>
<td>CV and cover letter</td>
<td>9/30/2009</td>
<td>37</td>
</tr>
<tr>
<td>Learning styles</td>
<td>10/7/2009</td>
<td>16</td>
</tr>
<tr>
<td>Motivating students</td>
<td>10/21/2009</td>
<td>10</td>
</tr>
<tr>
<td>Workshop Title</td>
<td>Date</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>------------</td>
<td>------</td>
</tr>
<tr>
<td>Literature Review</td>
<td>10/22/2009</td>
<td>35</td>
</tr>
<tr>
<td>Making learning accessible</td>
<td>10/28/2009</td>
<td>16</td>
</tr>
<tr>
<td>Academic interviewing</td>
<td>11/4/2009</td>
<td>31</td>
</tr>
<tr>
<td>Giving a Teaching Demo for Academic Interviews</td>
<td>1/13/2010</td>
<td>26</td>
</tr>
<tr>
<td>Time Management for TAs</td>
<td>1/20/2010</td>
<td>8</td>
</tr>
<tr>
<td>Writing a Literature Review</td>
<td>1/21/2010</td>
<td>44</td>
</tr>
<tr>
<td>Preparing for the GT Graduate Symposium</td>
<td>1/27/10</td>
<td>8</td>
</tr>
<tr>
<td>Writing Successful Grant Proposals</td>
<td>2/4/2010</td>
<td>23</td>
</tr>
<tr>
<td>Intercultural Communication</td>
<td>2/10/2010</td>
<td>3</td>
</tr>
<tr>
<td>Academic Faculty Jobs</td>
<td>2/17/2010</td>
<td>62</td>
</tr>
<tr>
<td>Using Technology in the Classroom</td>
<td>2/24/2010</td>
<td>6</td>
</tr>
</tbody>
</table>

These workshops are considered relevant within the context of *Tech to Teaching*, specifically relating to these objectives: 1) Goal #1, Objective 1: Provide students with easy access to information about teaching careers, and 2) Goal #2, Objective 1: Students will possess the knowledge, skills, and dispositions necessary for teaching. A summary of student reactions to these workshops, as well as specific information about the content and participant evaluations for each workshop, is presented below. Fall 2009 workshops are presented first in their own section. Spring 2010 workshops are presented in the succeeding section.

3.b.iii.1 FA09 CETL Workshops

Recurring Themes from Workshop Participant Evaluations:
Participants were generally pleased with these workshops, providing relatively high responses across all rating items for all workshops (interpolated median ratings ranged from 3.9 to 4.9 on a 5 point scale). Participants generally provided relatively high ratings to items relating to the workshop leaders’ organization and ability to explain concepts clearly. Participants generally provided relatively low ratings to items relating to how their participation in activities and discussions facilitated their learning of the course concepts. This suggests that planned activities and discussions may need to be modified in order to increase their perceived usefulness to workshop participants, and/or the usefulness of activities and discussions needs to be communicated more clearly by the leader. In some cases, participants provided relatively low ratings to items related to their confidence in their ability to apply the skills they learned to doing some activity themselves (e.g., grading student work, writing a lit review, etc.). Perhaps confidence could be increased by having the leader point out to students that even though they have not yet had a chance to apply these skills, the information they learned during the workshop should prove helpful when they do undertake these activities. Participant comments suggested that the workshop components they were most happy with tended to be specific tips, strategies, and procedures. They commented on liking the handouts they were given, and finding concrete examples to be quite useful. Participant comments suggested that students would like to see more concrete examples in nearly all workshops, specifically “good” and “bad” examples of each. For example, it might be useful to provide excerpts of high and low-quality teaching philosophies in order to help students understand what they should aim for and what they should try to avoid.

Academic Job Search Workshops

This series of workshops pertains to various components of the academic job search. Participants in these workshops learned about how the academic job search works in general, as well as how to understand, prepare for, and execute specific components of the academic job search such as interviews, CVs, etc.

Academic Job Search

Information delivered in this workshop included:
- Detailed description of the career development cycle and each of its components: self-assessment, exploring options, narrowing options & goal setting, and planning strategy & implementing goals
- Factors associated with different types of positions and different types of institutions, similarities and differences between them
- Current job market conditions
- Important questions to be asking oneself throughout the academic job search process
- Specific skills and techniques for becoming competitive on the job market, marketing oneself specifically to various types of jobs and networking
• Ways to identify job openings, how to navigate the application process (including materials you’ll need to prepare, how institutions screen applicants, on-campus interviews)

• Results of participant evaluations:
  o Participants were pleased with all aspects of this workshop that were assessed, providing interpolated median ratings ranging from 4.2 to 4.6.
  o One participant suggested having faculty who do hiring present at the workshop.

CV and Cover Letter

• Information delivered in this workshop included:
  o Practical tips for writing a cover letter, including:
    ▪ what to research prior to writing
    ▪ what to include in the letter and how to present it
    ▪ stylistic and organizational considerations in writing the cover letter
    ▪ planning considerations for writing the letter
  o Description of what a CV is and what it is used for
  o Considerations of who the audience is for a CV
  o Options for organizing a CV
  o Necessary vs. optional CV sections

• Results of participant evaluations:
  o Participants were pleased with all aspects of this workshop that were assessed, providing interpolated median ratings from 4.2 to 4.8.
  o Participants provided relatively high ratings to the item relating to the leader’s ability to explain concepts clearly, as well as to the items pertaining to recommending the workshop to others and the workshop having met or exceeded their expectations, suggesting that they were pleased with the leader’s presentation skills and the workshop overall.
  o One item for which participants provided a relatively low rating related to how confident they felt about CV and cover letter preparation after having attended the workshop. Perhaps confidence could be increased by pointing out how the specific skills taught can be implemented, and providing a specific action plan for doing so. Also, simply pointing out that participants haven’t yet had a chance to apply the skills they learned during the workshop, but that they will prove useful when the participants begin to work on these items, might help with their confidence level upon leaving the workshop.
  o Participant comments suggested that they were very appreciative of the practical tips provided in the workshop.
  o Participant comments indicated that participants would like more real examples of CVs and cover letters to show them what to do and what not to do.

Academic Interviewing
• Information delivered in this workshop included:
  o Various types of academic interviews and the purposes of each (e.g., phone interviews, conference interviews, campus interviews)
  o What to expect in a phone interview
    ▪ Participants got in groups and did a mock phone interview activity to practice these skills
  o Components of a campus interview with emphasis on the fact that this is essentially an interview that lasts 1-2 full days
    ▪ Purpose of and tips for execution of teaching demo, job talks, meetings, meals, and committee interviews
  o Types of interview questions to expect
    ▪ Participants got in groups and took turns answering self-selected interview questions in order to practice skills, get feedback on their responses
• Results of participant evaluations:
  o Participants were pleased with all aspects of this workshop that were assessed, providing interpolated median ratings from 4.1 to 4.8.
  o Participants provided relatively high ratings to the item relating to the leader’s ability to explain concepts clearly, as well as to the items pertaining to recommending the workshop to others and the workshop having met or exceeded their expectations, suggesting that they were pleased with the leader’s presentation skills and the workshop overall.
  o One item for which participants provided a relatively low rating related to how helpful they found the practice interviews they did during the workshop in improving their interviewing skills. Perhaps this activity could be restructured in a way to increase its usefulness, or its value could be explained more clearly to participants. Another alternative would be to assemble a panel of volunteers to do actual one-on-one practice interviews and provide feedback to each participant.
  o Participant comments reflected several participants’ feelings that there was enough material to increase the length or separate this into two workshops.
  o Participant comments indicated that participants enjoyed the interactive nature of the workshop and found the examples helpful.
  o One participant suggested inviting professors from faculty search committees to get their input.
  o Two participants suggested that the time distribution be shifted to spend less time on the phone interview and more on the campus interview.

**Teaching Workshops**

• This series of workshops dealt with various practical & applied aspects of teaching. Participants in these workshops learned background/introductory information, relevant theory & research, techniques, and best practices related to such topics as grading student work, planning lessons, creating a teaching philosophy and portfolio, learning styles, motivating students, and making learning accessible for everyone.

**Grading**
- Information delivered in this workshop included:
  - Tips for grading fairly, consistently, and efficiently
    - This workshop opened with an activity in which participants graded mock participant responses and then got in groups to compare their grading
  - Benefits for using rubrics to grade assignments, tips on how to create rubrics
    - Participants did a group activity in which they created rubrics for a mock assignment
  - Strategies for sharing grades and rubrics with students
  - Dos and don’ts for creating tests and rubrics, grading, and returning grades
  - Best practices for keeping a gradebook, with emphasis on the importance of doing so
  - Tips for dealing with students in discussions/arguments regarding their grades

- Results of participant evaluations:
  - Participants were pleased with all aspects of this workshop that were assessed, providing interpolated median ratings from 4.0 to 4.8.
  - Participants provided relatively low ratings on the item regarding their confidence in grading student work upon leaving the workshop. Perhaps confidence could be increased by pointing out how the specific skills taught can be implemented, and providing a specific action plan for doing so. Also, simply pointing out that participants haven’t yet had a chance to apply the skills they learned during the workshop, but that they will prove useful when they are actually grading student work, might help with their confidence level upon leaving the workshop.
  - Participants provided relatively low ratings to the item regarding how their participation in activities and discussions aided in their understanding of the workshop topics. These activities could potentially be modified to increase their perceived usefulness. One possibility might be to have participants bring in an actual assignment they’ve had to grade/will have to grade (with any identifying information removed) rather than using a somewhat artificial example. The leader could also increase his/her emphasis on the usefulness of practicing these skills.
  - Participants provided relatively high ratings to the item pertaining to the workshop having presented techniques that participants could implement in their current TA assignment, indicating that participants felt that information and skills they learned in the workshop would be immediately useful to them.
  - Participants also provided relatively high ratings to the item relating to the leader explaining concepts clearly, indicating that they were pleased with the leader’s presentation skills.

Lesson Planning

- Information delivered in this workshop included:
  - Situational factors to consider when planning a lesson (e.g., prior knowledge of audience, characteristics of audience, expectations of department/school, etc.)
  - Components of and tips for implementing the integrated lesson plan, which includes learning objectives, teaching and learning activities, and feedback/assessments
    - Good and problematic examples (with methods for improving the problematic example) of an integrated lesson plan were presented
• Bloom’s taxonomy: what it is and how to use it in designing learning objectives, activities, and assessments, including “action words” corresponding to the levels of Bloom’s taxonomy
• Participants did an activity in which they evaluated example learning objectives, assessment tools, and teaching/learning activities, and worked to use Bloom’s taxonomy to improve problematic examples
• Method of “backwards” lesson planning, in which the instructor first considers learning objectives, then how those objectives will be assessed, then the teaching and learning activities that will facilitate those objectives being learned
• Tips for implementing interactive activities and active learning in lesson plans, benefits of doing this
• Presentation of a lesson planning template, tips for using it

• Results of participant evaluations:
  • Participants were moderately pleased with all aspects of this workshop that were assessed, providing interpolated median scores ranging from 3.9 to 4.1. While lower than ratings from other FA09 workshops, these ratings are still relatively high (i.e., the majority of participants agreed or strongly agreed with all items).
  • All participants agreed or strongly agreed that the workshop both helped them learn how to use Bloom’s taxonomy to design an integrated lesson plan and presented techniques they could use in their current TA assignment, suggesting that these goals were achieved through the workshop.
  • Participants provided relatively lower ratings for the item relating to how participation in activities/discussions aided understanding of the workshop topics, with four participants responding “neutral” to this item. Perhaps the group activities could be modified to increase their perceived usefulness to participants, and/or the potential usefulness of the activities could be more clearly communicated to participants.
  • Participant comments indicated that participants would like more information on and explanation of Bloom’s taxonomy, as well as information on how to elicit continuous feedback from students on lesson plans, teaching style, etc. throughout the semester rather than just at the end.

Teaching Philosophy & Portfolio

• Information delivered in this workshop included:
  • Purposes of creating a teaching portfolio, including improving one’s teaching, may be required during academic job search, often used in promotion and tenure evaluations
  • Components of a teaching portfolio, including a statement of teaching philosophy, evidence of major teaching accomplishments and strengths as a teacher, and reflections on/summaries of this body of evidence
  • Tips for forming and considering one’s teaching philosophy, and presenting it in an interesting and compelling manner
    • Participants did a brainstorming activity in which they thought about their own teaching philosophy, using a handout which provided guidance for this activity
• Components of a teaching philosophy: beliefs, intents and actions
• Tips for ensuring that the evidence and reflections on that evidence presented in the portfolio line up with what was expressed in the teaching philosophy statement
• Practical techniques for writing a teaching philosophy statement (e.g., organization, length, etc.)

• Results of participant evaluations:
  o Participants were pleased with all aspects of the workshop that were assessed, providing interpolated median ratings ranging from 4.1 to 4.8.
  o Participants provided relatively low ratings for the item relating to how well the workshop helped them understand how to write a teaching philosophy. Perhaps participants would feel better-equipped to write their teaching philosophy if more practical, action item style tips were given, and/or if the link between the skills they were learning and actually writing their own teaching philosophy was clarified.
  o Participants also provided relatively low ratings for the item relating to how participation in activities/discussions aided understanding of the workshop topics, with four participants responding “neutral” to this item. Perhaps the group activities could be modified to increase their perceived usefulness to participants, and/or the potential usefulness of the activities could be more clearly communicated to participants.
  o Participants provided relatively high ratings to the items relating to the leader’s organization and ability to explain concepts clearly, as well as to the item pertaining to recommending the workshop to others, suggesting that they were pleased with the leader’s presentation skills and the workshop overall.
  o Participant comments indicated that participants were very appreciative of the resources on the handouts they were given, and would have liked to see more examples of good and not so good teaching philosophy statements and teaching portfolios.

Learning Styles

• Information delivered in this workshop included:
  o Description of what learning styles are, why they are important especially for instructors to consider, and how they can be assessed
  o Participants were shown real learning styles data from GT 1st year chemistry graduate students to illustrate the large variety in learning styles in such a restricted population
  o Factors that determine student learning
  o Research illustrating the potential negative implications of mismatch between the learning style of students and the presentation style of instructors
  o Tips for varying one’s teaching style in order to appeal to all types of learning styles throughout the course
    • Participants were given some example class activities and asked to identify which learning styles could be addressed by each activity
  o Emphasis on benefits to students of being able to learn in a wide variety of styles/settings/delivery methods

• Results of participant evaluations:
• Participants were moderately pleased with all aspects of this workshop that were assessed, providing interpolated median scores ranging from 3.9 to 4.8. While lower than ratings from other FA09 workshops, these ratings are still relatively high (i.e., the majority of participants agreed or strongly agreed with all items).

• Participants provided relatively high ratings to the item pertaining to knowing what learning styles are and being able to describe the multiple benefits of using a variety of teaching methods, indicating that this goal (teaching participants about the concept of learning styles and how this can inform teaching methods) was achieved.

• Participants provided relatively low ratings to the item about analyzing teaching methods for compatibility with learning style preferences, suggesting this goal was only moderately well-achieved. Perhaps more time could be devoted to this goal during the workshop, and/or information related to this goal could be more clearly presented.

• Participant comments indicated that they would have liked to see more concrete examples of classroom activities appealing to different learning styles.

Motivating Students

- Information delivered in this workshop included:
  - Educational theory on what contributes to student motivation or lack thereof
  - Common situations in which students often experience a lack of motivation, and steps teachers can take to overcome these situations
  - Techniques and strategies for increasing student motivation
    - Participants did a group brainstorming activity in which they came up with specific methods for increasing student motivation

- Results of participant evaluations:
  - Participants were pleased with all aspects of this workshop that were assessed, providing interpolated median ratings ranging from 4.2 to 4.6.
  - Participants provided relatively high ratings to the item pertaining to the leader explaining concepts clearly, indicating that they were pleased with the leader’s presentation skills.
  - Participants provided relatively high ratings to the item relating to learning concrete strategies for increasing student motivation, indicating that this goal was well-achieved during the workshop.
  - Participant comments indicated that they were happy with the specific strategies and examples provided.
  - One participant pointed out that TAs often have limited control over a class, and asked that means of motivating students within these constraints be discussed.

Making Learning Accessible

- Information delivered in this workshop included:
  - Definition and application of accessibility
  - Accessibility as it relates to legal issues, ethics, and good teaching practices
  - Responsibilities of instructors, students, and institutions with regard to accessibility
• Issues of accessibility in various learning environments, including small and large classrooms, labs, online, distance, etc.
• Pedagogical and technological approaches to accessibility
• Specific programs at various institutions that work to promote and ensure accessibility (e.g., CAST, Do-IT, and GRADE)

• Results of participant evaluations:
  o Participants were moderately pleased with all aspects of this workshop that were assessed, providing interpolated median ratings ranging form 3.9 to 4.3. While lower than ratings from other FA09 workshops, these ratings are still relatively high (i.e., the majority of participants agreed or strongly agreed with all items).
  o Participants provided relatively high ratings to the items relating to the workshop helping them understand the principles of accessibility of learning and providing them with ideas to implement in their own class, suggesting that these goals were accomplished relatively well.
  o Participant comments indicated that participants would have liked more interactive activities and demonstration of the techniques that were presented.
  o Participant comments indicated that they were appreciative of learning about potential issues faced by their students and how best to handle these issues if they arise.

Communication Workshops

• The one workshop in this category dealt with literature reviews. Participants in this workshop learned about what a successful lit review looks like and best practices for writing one.

Literature Review

• Information delivered in this workshop included:
  o Qualities of a successful literature review
  o Tips for organizing materials, reading, and writing the literature review
  o Dos and Don’ts, including practical advice on how to use quotes, paraphrasing, criticism of sources, etc.

• Results of participant evaluations:
  o Participants were pleased with all aspects of this workshop that were assessed, providing interpolated media responses ranging from 4.1 to 4.9.
  o Participants provided relatively low ratings to the item on feeling more confident about one’s ability to write a successful literature review. This may be related to the fact that participants have not yet had a chance to apply the skills they just learned. Perhaps participant confidence levels could be increased by providing the concrete steps of an action plan for writing a lit review (e.g., a timeline or organizational strategy), and/or explaining more clearly to participants how the information they learned in the workshop will translate into success in writing a lit review.
  o Participants provided relatively high ratings to the items about learning strategies to help in planning a lit review, and their confidence in completing these planning
steps prior to beginning the lit review. So it seems that participants feel confident about everything prior to actually writing the lit review, and feel less confident about actually writing the lit review. Perhaps the time devoted to these various components could be shifted in order to devote more time to presenting information about actually writing the lit review.

- Participant comments indicated that they would have liked to see more specific examples, such as example good and bad paragraphs, organizational structures, etc.
- Participant comments indicated that they thought the instructor did a good job helping them learn the distinction between a lit review and a book report, and that they appreciated the specific strategies and principles that were presented.
Table 10. Participant evaluations for FA09 CETL workshops.

<table>
<thead>
<tr>
<th>Academic Job Search</th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># Students Responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me understand the parts of the Career Development Cycle as they apply to the academic job search.</td>
<td>100.0%</td>
<td>43</td>
<td>4.5</td>
</tr>
<tr>
<td>This workshop helped me understand what resources are available to help me with my career development</td>
<td>95.3%</td>
<td>43</td>
<td>4.3</td>
</tr>
<tr>
<td>This workshop helped me understand how to market myself for different types of jobs.</td>
<td>93.2%</td>
<td>44</td>
<td>4.2</td>
</tr>
<tr>
<td>This workshop helped me understand the basics of the application and interviewing process.</td>
<td>95.3%</td>
<td>43</td>
<td>4.4</td>
</tr>
<tr>
<td>The materials from this program will be useful.</td>
<td>95.2%</td>
<td>42</td>
<td>4.4</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>100.0%</td>
<td>42</td>
<td>4.6</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>88.1%</td>
<td>42</td>
<td>4.2</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/Tas/Post-Docs/Etc.</td>
<td>95.5%</td>
<td>44</td>
<td>4.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CV and Cover Letter</th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># Students Responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me understand the purpose and necessary content for a CV and cover letter</td>
<td>96.7%</td>
<td>30</td>
<td>4.6</td>
</tr>
<tr>
<td>This workshop provided me with concrete strategies for designing and/or revising my CV and cover letter.</td>
<td>93.3%</td>
<td>30</td>
<td>4.6</td>
</tr>
<tr>
<td>This workshop makes me feel more confident about CV and cover letter preparation.</td>
<td>86.7%</td>
<td>30</td>
<td>4.2</td>
</tr>
</tbody>
</table>
The activities/discussions I participated in aided my understanding of the concepts presented. | 80.0% | 25 | 4.4 |
The leader explained concepts clearly. | 93.1% | 29 | 4.8 |
This workshop met (or exceeded) my expectations. | 87.1% | 31 | 4.6 |
I would recommend this workshop to other Graduate Students/Tas/Post-Docs/Etc | 90.0% | 30 | 4.8 |

<table>
<thead>
<tr>
<th><strong>Academic Interviewing</strong></th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># Students Responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me understand the characteristics and purpose of the various components of an academic interview</td>
<td>100.0%</td>
<td>23</td>
<td>4.6</td>
</tr>
<tr>
<td>This workshop helped me feel more confident about the academic interview process.</td>
<td>95.7%</td>
<td>23</td>
<td>4.4</td>
</tr>
<tr>
<td>This workshop gave me specific ideas about how to answer interview questions.</td>
<td>100.0%</td>
<td>23</td>
<td>4.6</td>
</tr>
<tr>
<td>The practice interview activities I participated in helped me improve my interviewing skills.</td>
<td>90.9%</td>
<td>22</td>
<td>4.1</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>100.0%</td>
<td>23</td>
<td>4.8</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>95.7%</td>
<td>23</td>
<td>4.6</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/Tas/Post-Docs/Etc.</td>
<td>100.0%</td>
<td>23</td>
<td>4.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Grading</strong></th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># Students Responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me to learn techniques to grade student work more efficiently and effectively.</td>
<td>100.0%</td>
<td>16</td>
<td>4.3</td>
</tr>
<tr>
<td>This workshop presented techniques that I can implement in my current TA assignment.</td>
<td>100.0%</td>
<td>16*</td>
<td>4.6</td>
</tr>
<tr>
<td>This workshop helped me feel more confident in my ability to grade student work.</td>
<td>87.5%</td>
<td>16</td>
<td>4.0</td>
</tr>
</tbody>
</table>
The activities/discussions I participated in aided my understanding of the concepts presented. | 94.1% | 17 | 4.1 |
--- | --- | --- | --- |
The leader explained concepts clearly. | 100.0% | 16 | 4.8 |
This workshop met (or exceeded) my expectations. | 86.7% | 15 | 4.2 |
I would recommend this workshop to other Graduate Students/Tas/Post-Docs/Etc | 100.0% | 16 | 4.2 |

<table>
<thead>
<tr>
<th>Lesson Planning</th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># Students Responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me to learn how Bloom’s taxonomy can be used to design an integrated lesson plan.</td>
<td>100.0%</td>
<td>15</td>
<td>4.1</td>
</tr>
<tr>
<td>This workshop presented techniques that I can implement in my current TA assignment</td>
<td>90.9%</td>
<td>14*</td>
<td>4.1</td>
</tr>
<tr>
<td>I feel more confident in my abilities to create a lesson plan to enhance student learning after this workshop.</td>
<td>86.7%</td>
<td>15</td>
<td>4.1</td>
</tr>
<tr>
<td>The activities/discussions I participated in aided my understanding of the concepts presented.</td>
<td>73.3%</td>
<td>15</td>
<td>3.9</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>93.3%</td>
<td>15</td>
<td>4.0</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>86.7%</td>
<td>15</td>
<td>4.1</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/Tas/Post-Docs/Etc.</td>
<td>86.7%</td>
<td>15</td>
<td>4.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching Philosophy &amp; Portfolio</th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># Students Responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me understand what a Teaching Philosophy is.</td>
<td>100.0%</td>
<td>26</td>
<td>4.7</td>
</tr>
<tr>
<td>This workshop helped me understand what a Teaching Portfolio is.</td>
<td>100.0%</td>
<td>26</td>
<td>4.6</td>
</tr>
<tr>
<td>Statement</td>
<td>% Responding &quot;agree&quot; or &quot;strongly agree&quot;</td>
<td># Students Responding</td>
<td>Interpolated Median</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------------</td>
<td>-----------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>This workshop helped me understand why I might need or want to create a Teaching Portfolio.</td>
<td>100.0%</td>
<td>27</td>
<td>4.7</td>
</tr>
<tr>
<td>This workshop helped me understand how to assemble a Teaching Portfolio.</td>
<td>96.2%</td>
<td>26</td>
<td>4.4</td>
</tr>
<tr>
<td>This workshop helped me understand how to write a Teaching Philosophy.</td>
<td>100.0%</td>
<td>27</td>
<td>4.3</td>
</tr>
<tr>
<td>The materials from this program will be useful.</td>
<td>100.0%</td>
<td>26</td>
<td>4.8</td>
</tr>
<tr>
<td>The activities/discussions I participated in aided my understanding of the concepts presented.</td>
<td>84.6%</td>
<td>26</td>
<td>4.1</td>
</tr>
<tr>
<td>The leader was well-organized.</td>
<td>100.0%</td>
<td>26</td>
<td>4.9</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>100.0%</td>
<td>26</td>
<td>4.9</td>
</tr>
<tr>
<td>This workshop met my expectations.</td>
<td>100.0%</td>
<td>26</td>
<td>4.5</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/Tas/Post-Docs/Etc.</td>
<td>100.0%</td>
<td>26</td>
<td>4.8</td>
</tr>
</tbody>
</table>

**Learning Styles**

<table>
<thead>
<tr>
<th>Statement</th>
<th>% Responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># Students Responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can explain what learning styles are.</td>
<td>100.0%</td>
<td>12</td>
<td>4.8</td>
</tr>
<tr>
<td>I can describe the multiple benefits of using a variety of teaching methods.</td>
<td>91.7%</td>
<td>12</td>
<td>4.5</td>
</tr>
<tr>
<td>I can analyze teaching methods for compatibility with learning style preferences.</td>
<td>83.3%</td>
<td>12</td>
<td>3.9</td>
</tr>
<tr>
<td>The activities/discussions I participated in aided my understanding of the concepts presented.</td>
<td>91.7%</td>
<td>12</td>
<td>4.0</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>91.7%</td>
<td>12</td>
<td>4.2</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>83.3%</td>
<td>12</td>
<td>4.2</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/Tas/Post-Docs/Etc.</td>
<td>91.7%</td>
<td>12</td>
<td>4.1</td>
</tr>
</tbody>
</table>

**Motivating Students**

<table>
<thead>
<tr>
<th>Statement</th>
<th>% Responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># Students Responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
</table>
### Making Learning Accessible

<table>
<thead>
<tr>
<th>Statement</th>
<th>% Responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># Students Responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me understand the principles of accessibility of learning</td>
<td>100.0%</td>
<td>15</td>
<td>4.3</td>
</tr>
<tr>
<td>This workshop gave me some ideas to implement in my own class or recitation.</td>
<td>100.0%</td>
<td>15</td>
<td>4.2</td>
</tr>
<tr>
<td>The activities/discussions I participated in aided my understanding of the concepts presented.</td>
<td>86.7%</td>
<td>15</td>
<td>4.1</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>86.7%</td>
<td>15</td>
<td>4.3</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>80.0%</td>
<td>15</td>
<td>4.0</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/Tas/Post-Docs/Etc.</td>
<td>73.3%</td>
<td>15</td>
<td>3.9</td>
</tr>
</tbody>
</table>

### Literature Review

<table>
<thead>
<tr>
<th>Statement</th>
<th>% Responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># Students Responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in this workshop helped me to understand the qualities of a successful literature review.</td>
<td>100.0%</td>
<td>21</td>
<td>4.7</td>
</tr>
<tr>
<td>What I learned in this workshop will help me successfully PLAN the strategies that led up to the actual writing of the literature review document</td>
<td>95.2%</td>
<td>21</td>
<td>4.8</td>
</tr>
<tr>
<td>Question</td>
<td>Agree %</td>
<td>Non-Responders</td>
<td>Strongly Agree/Agree %</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---------</td>
<td>----------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>What I learned in this workshop will help me successfully COMPLETE the steps that led up to the actual writing of the literature review.</td>
<td>85.7%</td>
<td>21</td>
<td>4.3</td>
</tr>
<tr>
<td>I feel more confident in my ability to WRITE a successful literature review.</td>
<td>81.0%</td>
<td>21</td>
<td>4.1</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>100.0%</td>
<td>21</td>
<td>4.9</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>85.7%</td>
<td>21</td>
<td>4.1</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/Tas/Post-Docs/Etc.</td>
<td>95.2%</td>
<td>21</td>
<td>4.6</td>
</tr>
</tbody>
</table>

* these counts include 1 or more students responding N/A, who were not included in the calculations for % students responding strongly agree or agree
3.b.iii.2 SP10 CETL Workshops

Recurring Themes from Workshop Participant Evaluations:

- Participants were generally pleased with these workshops, providing relatively high ratings across items for all workshops (interpolated median ratings ranged from 3.6 to 4.9 on a 5 point scale).
- Participants generally provided relatively high ratings to items relating to the workshop leaders' organization and ability to explain concepts clearly.
- Participants generally provided relatively low ratings to items relating to how their participation in activities and discussions facilitated their learning of the course concepts. This suggests that planned activities and discussions may need to be modified in order to increase their perceived usefulness to workshop participants, and/or the usefulness of activities and discussions needs to be communicated more clearly by the leader.
- In some cases, participants provided relatively low ratings to items related to their confidence in their ability to apply the skills they learned to facilitating an activity themselves (e.g., grading student work, writing a lit review, etc.). Perhaps confidence could be increased by having the leader point out to students that even though they have not yet had a chance to apply these skills, the information they learned during the workshop should prove helpful when they do undertake these activities. Students may also be directed to specifically articulate the new skills/knowledge they might incorporate into the facilitation of an activity as a result of the workshop and then think about any changes this creates in their confidence.
- Participant comments suggested that the workshop components they were most happy with tended to be specific tips, strategies, and procedures. They commented on liking the handouts they were given, and felt concrete examples would be quite useful.
- Participant comments suggested that students would like to see additional concrete examples in nearly all workshops, specifically “good” and “bad” examples of each.
Academic Job Search Workshops

This series of workshops covered one general and one specific component of the academic job search. Participants in these workshops learned about the experiences of faculty members from various types of schools, as well as specific applied information about giving a teaching demo, a common component of academic job interviews.

Academic Faculty Jobs Panel

- 62 participants attended this workshop.
- Panelists included faculty members from Georgia Tech, Southern Polytechnic State University, Agnes Scott College, Georgia Perimeter College, and Georgia Gwinnett College.
- Panelists were invited to address some of the following questions, in addition to answering questions from attendees:
  - How and why did you decide to be a faculty member at a Community College, State College, Research University, Liberal Arts College, etc?
  - What percentage of your time do you spend on the following: teaching, research, university, service, etc?
  - How many hours per week do you work? How does this typically change over time (before vs. after tenure)?
  - What are the 3 biggest advantages/rewards to your job?
  - What are 3 of the biggest challenges/disadvantages to your job?
  - What can graduate students do while still in graduate school to be more competitive for jobs in your line of work?
- Results of participant evaluations:
  - Participants agreed that both hearing the panelists’ perspectives and the question and answer portion of the panel were valuable (interpolated median score of 4.5 for both items)
  - Participants were pleased with the workshop overall, providing an interpolated median score of 4.4 to the item about recommending the workshop to others.
  - Participant comments indicated that participants appreciated the variety of institution types represented and perspectives offered, as well as the open discussion format of the panel.
  - Participant comments indicated that participants would have liked to see more panelists from research institutions, and some participants would have liked a brief overview about the various types of schools, differences between them, etc. at the beginning of the panel.

Giving a Teaching Demo for Academic Interviews

- 26 participants attended this workshop.
- Information delivered in this workshop included:
  - What a teaching demo entails, including specific things one might be asked to do during the demo, possible variations on the teaching demo
• Potential benefits of giving a teaching demo, both for the job candidate and the hiring department
• Situational factors that should be considered in planning the demo, including the audience, length of time, topic, room type
• Basics of lesson planning
• Best practices for planning and conducting the teaching demo

• Results of participant evaluations:
  o This workshop was perceived to be very successful in providing students with foundational information regarding teaching demos: participants agreed that the workshop helped them understand what a teaching demo is, what its potential benefits are, and how to begin planning for their own teaching demos (interpolated median ratings of 4.8, 4.5, and 4.5, respectively for these items)
  o Students were pleased with the facilitator’s ability to explain material clearly, assigning an interpolated median rating of 4.7 for this item.
  o Participants were slightly less pleased with the materials, giving an interpolated median rating of 4.2 for an item relating to how useful the workshop materials would be for them. The materials could be modified for future workshops, and/or the facilitator could provide more information about how the materials will be useful to the participants in the future.
  o Participant comments indicated that students were most pleased with the aspects of the workshop aimed at helping them prepare for their own teaching demos.

**Teaching Workshops**

This series of workshops dealt with various practical & applied aspects of teaching. Participants in these workshops learned background/introductory information, relevant theory & research, techniques, and best practices related to such topics as time management for TAs, intercultural communication, and using technology in the classroom.

**Time Management for TAs**

• 8 students attended this workshop.
• Information delivered in this workshop included:
  o Introduction of the time management matrix for classifying daily activities, how to use this tool to maximize effective use of time
    - Participants did an activity where they mapped out their own daily activities on this matrix
  o Tips for improving personal time management, including scheduling principles
  o Reasons behind and ways to decrease procrastination
• Results of participant evaluations:
  o Participants agreed that the workshop helped them identify some ways they could improve their own personal time management and organization, as well as informed them of how to use the time management matrix to improve work output (interpolated median ratings of 4.4 and 4.3, respectively for these items).
Participants were slightly less pleased with the productivity and usefulness of the group discussions and activities, providing an interpolated median rating of 3.6 for this item. Perhaps in future workshops, the facilitator could take a few minutes to illustrate the usefulness of the activities and discussions, in terms of how practicing the skills now will make it easier for students to apply them in the future.

Participant comments indicated that participants were mixed on their feelings regarding the matrix model; one participant reported liking it, while another found it confusing (small number of comments due to low number of participants in this workshop).

Intercultural Communication

- 3 students attended this workshop.
- Information delivered in this workshop included:
  - Basics regarding what culture means and its potential effects within the higher education context
  - Overview of typical American values
  - Components of educational systems which differ between countries
    - Students did a role-playing activity which served to illustrate such differences
  - Techniques for reducing cross-cultural misunderstandings in the classroom
- Results of participant evaluations:
  - Participants agreed that the instructor explained concepts clearly, providing an interpolated median rating of 4.8 for this item.
  - Participants were mostly in agreement regarding their ability to communicate more effectively with people from other cultures after having attended the workshop (interpolated median rating of 4.3 for this item).
  - One student enjoyed the primarily discussion-based (rather than lecture-based) format of the workshop (small number of comments due to low number of participants in this workshop).

Using Technology in the Classroom

- 6 students attended this workshop.
- Information delivered in this workshop included:
  - Pros and cons of using PowerPoint and laptops in the classroom.
    - Participants did group brainstorming activities to identify the pros and cons of PowerPoint and laptops in the classroom
  - Research findings on the use of PowerPoint and laptops in the classroom.
  - Tips for designing effective PowerPoint presentations.
  - Ideas for classroom activities using laptops.
- Results of participant evaluations:
  - The workshop was perceived to be effective in helping students learn best practices in PowerPoint design and classroom laptop use (interpolated median rating of 4.5 for this item), but was perceived to be less effective in providing information to
students about the research findings relating to PowerPoint and laptop use in the classroom (interpolated median rating of 3.8 for this item).

- Participant comments indicated that participants enjoyed the presentation of research on PowerPoint and laptops and the discussions of the pros and cons of each, but would have liked to have more time for the activities and a more equal balance between the time spent on each of the two general topics. In future workshops the facilitator should be more mindful of staying on schedule so all workshop components can be addressed thoroughly.

**Research/Communication Workshops**

This series of workshops dealt with critical components of the research process, providing strategies to aid students in the successful execution of these components. Two of these workshops were more oriented to the writing aspect of the research process, including writing literature reviews and grant proposals. The third workshop dealt with research presentations, specifically giving a poster presentation at the GT Graduate Symposium.

**Writing a Literature Review**

- 44 students attended this workshop.
- Information delivered in this workshop included:
  - Qualities of a successful literature review
  - Tips for organizing materials, reading, and writing the literature review
  - Dos and Don’ts, including practical advice on how to use quotes, paraphrasing, criticism of sources, etc.
- Results of participant evaluations:
  - This workshop was perceived to be successful in helping students understand the components of, and identify the steps for planning, a successful literature review (interpolated median scores of 4.4 and 4.3, respectively, for these items), but was perceived as being slightly less successful in helping students feel confident that they could carry out these planning steps and complete the actual writing of a successful literature review (interpolated median scores of 4.0 and 3.9, respectively for these items).
  - Participant comments indicated that they appreciated the organizational strategies, emphasis on doing a critical review, and tips for annotating and paraphrasing sources.
  - Participant comments indicated that they would have liked to see more specific examples of what to do and what not to do.

**Writing Successful Grant Proposals**
• 23 participants attended this workshop.
• Information delivered in this workshop included:
  o Specific tips and strategies for writing grant proposals, including:
    ▪ Carefully follow instructions, using provided rubrics/templates
    ▪ Support all statements, methodology, etc. with appropriate references
    ▪ Have an appropriate balance of theoretical framework and plan of action
    ▪ Use institutional assistance available for proposal preparation
    ▪ Seek feedback from others before submitting the proposal
• Results of participant evaluations:
  o This workshop was perceived as being mostly successful in accomplishing the objectives of having students understand the purpose and contents of a successful grant proposal, providing students with strategies for writing successful grant proposals, and increasing students’ confidence in writing their own grant proposals (interpolated median ratings of 4.1, 3.7, and 3.8, respectively for these items).
  o Participant comments indicated that they found the panel discussion very valuable, but would have preferred a more organized/structured discussion, as well as specific examples of successful grant proposals.

Preparing for the GT Graduate Symposium

• 8 students attended this workshop.
• Information delivered in this workshop included:
  o Tips for giving panel presentations
  o Strategies for designing and presenting posters, including:
    ▪ Layout and formatting
    ▪ Text style and size
    ▪ Use of color and graphics
    ▪ Proper content (i.e., not blocks of text from a manuscript)
    ▪ Appropriate behavior during the presentation
    ▪ Engaging with visitors to the poster
• Results of participant evaluations:
  o This workshop was perceived as being very successful in achieving the learning objectives of having students understand the purpose of a poster presentation and how to design a poster, as well as increasing students’ confidence in doing their own poster presentations (interpolated median scores of 4.8 for each of these items).
  o Participants agreed that the workshop leader explained concepts clearly, providing an interpolated median rating of 4.9 for this item.
  o Participant comments indicated that they appreciated the poster examples and presentation tips.
Table 11. Participant Evaluations for SP10 CETL Workshops.

<table>
<thead>
<tr>
<th>Academic Faculty Jobs Panel</th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># students responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This panel provided me with more information about career options in academia.</td>
<td>94.5%</td>
<td>55</td>
<td>4.4</td>
</tr>
<tr>
<td>Overall, hearing about the panelists' perspectives was valuable.</td>
<td>98.3%</td>
<td>60</td>
<td>4.5</td>
</tr>
<tr>
<td>The question and answer portion of the panel was valuable.</td>
<td>91.7%</td>
<td>48</td>
<td>4.5</td>
</tr>
<tr>
<td>This panel met (or exceeded) my expectations.</td>
<td>81.8%</td>
<td>55</td>
<td>4.1</td>
</tr>
<tr>
<td>I would recommend this type of panel to other Graduate Students/TAs/Post-Docs/Etc.</td>
<td>92.7%</td>
<td>55</td>
<td>4.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Giving a Teaching Demo</th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># students responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me understand what a Teaching Demo is.</td>
<td>95.2%</td>
<td>21</td>
<td>4.8</td>
</tr>
<tr>
<td>This workshop helped me understand the benefits of a Teaching Demo.</td>
<td>95.2%</td>
<td>21</td>
<td>4.5</td>
</tr>
<tr>
<td>This workshop helped me learn how to prepare in advance for a Teaching Demo.</td>
<td>90.5%</td>
<td>21</td>
<td>4.5</td>
</tr>
<tr>
<td>The materials from this program will be useful.</td>
<td>81.0%</td>
<td>21</td>
<td>4.2</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>95.2%</td>
<td>21</td>
<td>4.7</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>71.4%</td>
<td>21</td>
<td>4.0</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/Tas/Post-Docs/Etc.</td>
<td>90.5%</td>
<td>21</td>
<td>4.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time Management for TAs</th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># students responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me identify some ways in which I could improve my work time and personal organization</td>
<td>100.0%</td>
<td>7</td>
<td>4.4</td>
</tr>
</tbody>
</table>

78
<table>
<thead>
<tr>
<th>Statement</th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># students responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me brainstorm some ways to save time in day-to-day teaching</td>
<td>85.7%</td>
<td>7</td>
<td>4.1</td>
</tr>
<tr>
<td>This workshop helped me to understand how the classification of work tasks (Matrix activity) can help improve work output and stress.</td>
<td>71.4%</td>
<td>7</td>
<td>4.3</td>
</tr>
<tr>
<td>The discussion with my peers and instructor-led activities helped me to learn principles of time management.</td>
<td>57.1%</td>
<td>7</td>
<td>3.6</td>
</tr>
<tr>
<td>The materials from this program will be useful.</td>
<td>85.7%</td>
<td>7</td>
<td>4.0</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>85.7%</td>
<td>7</td>
<td>4.3</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>85.7%</td>
<td>7</td>
<td>4.0</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/TAs/Post-Docs/Etc.</td>
<td>85.7%</td>
<td>7</td>
<td>4.0</td>
</tr>
<tr>
<td>Participation in this workshop increased my understanding of the complex relationship between culture and communication.</td>
<td>100.0%</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>What I have learned in this workshop will assist me in communicating more effectively with GT undergraduate students regardless of cultural differences.</td>
<td>100.0%</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>I feel more confident in my ability to communicate effectively with those from other cultures now than when the training session started.</td>
<td>100.0%</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>The facilitator(s) explained concepts clearly.</td>
<td>100.0%</td>
<td>3</td>
<td>4.8</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>100.0%</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/TAs/Post-Docs/Etc.</td>
<td>100.0%</td>
<td>3</td>
<td>4.8</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement</th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># students responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Technology in the Classroom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% responding &quot;agree&quot; or &quot;strongly agree&quot;</td>
<td># students responding</td>
<td>Interpolated Median</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------</td>
<td>-----------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>I can describe general research findings related to the use of PowerPoint and laptops in the classroom.</td>
<td>83.3%</td>
<td>6</td>
<td>3.8</td>
</tr>
<tr>
<td>I can apply best practices in PowerPoint slide design and effective classroom use of laptops.</td>
<td>83.3%</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>The activities/discussions I participated in aided my understanding of the concepts presented.</td>
<td>83.3%</td>
<td>6</td>
<td>4.0</td>
</tr>
<tr>
<td>The facilitator explained concepts clearly.</td>
<td>83.3%</td>
<td>6</td>
<td>4.2</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>83.3%</td>
<td>6</td>
<td>4.2</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/TAs/Post-Docs/Etc.</td>
<td>83.3%</td>
<td>6</td>
<td>4.5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Writing a Successful Literature Review</strong></th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># students responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in this workshop helped me understand the qualities of a successful literature review.</td>
<td>88.4%</td>
<td>43</td>
<td>4.4</td>
</tr>
<tr>
<td>What I learned in this workshop will help me successfully PLAN the strategies that lead up to the actual writing of the literature review document.</td>
<td>95.7%</td>
<td>47</td>
<td>4.3</td>
</tr>
<tr>
<td>What I learned in this workshop will help me successfully COMPLETE the steps that lead up to the actual writing of the literature review document.</td>
<td>76.2%</td>
<td>42</td>
<td>4.0</td>
</tr>
<tr>
<td>I feel more confident in my ability to WRITE a literature review.</td>
<td>71.4%</td>
<td>42</td>
<td>3.9</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>97.6%</td>
<td>42</td>
<td>4.7</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>76.2%</td>
<td>42</td>
<td>4.1</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/TAs/Post-Docs/Etc.</td>
<td>85.7%</td>
<td>42</td>
<td>4.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Writing a Successful Grant Proposal</strong></th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># students responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me understand the purpose of and necessary content for a general grant proposal.</td>
<td>85.7%</td>
<td>21</td>
<td>4.1</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>This workshop provided me with concrete strategies for designing and/or revising my grant proposal.</td>
<td>61.9%</td>
<td>21</td>
<td>3.7</td>
</tr>
<tr>
<td>This workshop makes me feel more confident about grant proposal presentation.</td>
<td>66.7%</td>
<td>21</td>
<td>3.8</td>
</tr>
<tr>
<td>The activities/discussions I participated in aided my understanding of the concepts presented.</td>
<td>81.0%</td>
<td>21</td>
<td>4.1</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>100.0%</td>
<td>21</td>
<td>4.3</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>87.5%</td>
<td>16</td>
<td>4.1</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/TAs/Post-Docs/Etc.</td>
<td>77.3%</td>
<td>22</td>
<td>4.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preparing for the Graduate Research Symposium</th>
<th>% responding &quot;agree&quot; or &quot;strongly agree&quot;</th>
<th># students responding</th>
<th>Interpolated Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>This workshop helped me understand the purpose of a symposium presentation and/or poster session.</td>
<td>100.0%</td>
<td>7</td>
<td>4.8</td>
</tr>
<tr>
<td>This workshop provided me with concrete strategies for planning a symposium presentation and/or poster session.</td>
<td>100.0%</td>
<td>7</td>
<td>4.8</td>
</tr>
<tr>
<td>This workshop makes me feel more confident about a symposium presentation and/or poster session.</td>
<td>85.7%</td>
<td>7</td>
<td>4.8</td>
</tr>
<tr>
<td>The activities/discussions I participated in aided my understanding of the concepts presented.</td>
<td>100.0%</td>
<td>7</td>
<td>4.6</td>
</tr>
<tr>
<td>The leader explained concepts clearly.</td>
<td>100.0%</td>
<td>7</td>
<td>4.9</td>
</tr>
<tr>
<td>This workshop met (or exceeded) my expectations.</td>
<td>100.0%</td>
<td>7</td>
<td>4.6</td>
</tr>
<tr>
<td>I would recommend this workshop to other Graduate Students/TAs/Post-Docs/Etc.</td>
<td>100.0%</td>
<td>7</td>
<td>4.8</td>
</tr>
</tbody>
</table>
3.c. Mentoring

Activities in which students can gain teaching experience while working under a mentor represent an important component of Tech to Teaching. The Teaching SURE program is the main vehicle for mentoring at the K-12 level. This program continued in a similar manner and with a comparable number of participants as was reported in the 2009 annual report. For the higher education pathway, the STEP program continued during the 2009-2010 school year; this program will be ending shortly but will be replaced by a similar program, SLIDER. A mentored teaching practicum course is also offered through CETL as a component of the higher education pathway; this course was offered for the first time in FA09 and was offered again in SP10. Each of these mentoring activities is discussed in more detail below.

3.c.i. K-12 pathway mentoring

The Teaching Summer Undergraduate Research Experience (Teaching SURE) is a summer program for Georgia Tech undergraduate students designed to help them both explore a potential interest in teaching at the K-12 level and also gain knowledge and experience in laboratory research and research methods. Each student in the program is paired with an experienced K-12 teacher; the student and teacher work together in a GT research lab for an 8 week period. During this time, the GT student work on a research project and use their research experiences to help their teacher partners prepare plans for classroom activities.

Some of the program participants also had the opportunity to work directly with one or more high school students. The Teaching SURE program initial plans did not involve having GT students work directly with high school students. This element of the program came about for some GT student-teacher pairs because the teachers were involved with either the GT High School Student Summer Research Program or a separate project where the teachers were creating curriculum materials for a summer camp. In these situations, the GT student worked with the high school students that their teacher partners were working with through these other projects. GT students whose teacher partners were not working with high school students spent their time conducting research projects with their teacher partners. Because the GT students who did work with high school students reported that they had really enjoyed it, the Teaching SURE program intends to maximize such opportunities in the future.

A summary of the overall student perspective on the program is shown below.

- 9 students participated during SU10.
- 3/3 survey respondents agreed or strongly agreed that with the statement “After the Teaching SURE experience I believe I will be a better teacher.”
- 3/3 survey respondents agreed or strongly agreed with the statement “I feel that the Teaching SURE program improved my likelihood of success as I move along the pathway towards a teaching career in science or math.”

This program fits well within several of the Tech to Teaching goal. Goal#1, Objective 1 is to “provide students with easy access to information about teaching careers.” A close working relationship with an experienced teacher should provide an invaluable resource for gathering such information. Goal #2, Objective 1 states that “students will possess the knowledge, skills, and dispositions necessary for
teaching.” The program has several specific components, including having the GT students work with their teacher partners to develop action plans, which speak directly to this goal of helping GT students develop the necessary skills for teaching. The opportunity to work directly with high school students should be very illustrative in helping GT students figure out whether they possess, or would be able to develop, the disposition necessary for teaching.

Evaluations of the program were filled out by only 3 of the 9 participants; despite the low response rate, their responses & comments demonstrate the ways in which this program was effective in addressing the *Tech to Teaching* goals outlined above.

In general, the survey data indicated that students were pleased with their participation in the program. Students reported that they learned a lot and experienced a maintained or increased interest in teaching as a potential career path as a result of their participation. All students responding to the survey agreed that having participated in Teaching SURE would make them a better teacher, and would also lead to an improved likelihood of success as they move along the pathway to a teaching career.

**Specific Survey Responses**

*Interactions with faculty mentors:*

- 2 students discussed expectations and timelines with their faculty mentors prior to beginning research, while 1 did not.
- 2 students most frequently communicated with their faculty mentors face-to-face, while 1 student most frequently communicated via e-mail.
- 2 students reported meeting with their faculty mentor 8 times per month while 1 student met with his/her faculty mentor 4 times per month. All three students thought the number of meetings they had with their faculty mentor was “about right”.
- Student comments regarding feedback on research from faculty mentor:
  - He was great! Even offered me a position in his lab this fall.
  - I received a lot of feedback. He sent me articles to read and help come up with the ideas for some of the activities.
  - She was very helpful in every way possible.
- Student comments regarding what their faculty mentor could have done differently to enhance the student’s experience:
  - Nothing. Dr. XXX was a great mentor!
  - Provided more opportunities for me to work with my teacher partner.
  - We focused a lot on the teaching aspect of the program. It would have been nice to get to do more of the research going on in his lab.

*Interactions with teacher partners:*
• The frequencies of meetings these students had with their teacher partners were 1, 5, and 20 times a month. One student felt that the number of meetings was too few, while 2 students thought it was “about right”.

• Student comments regarding interactions with teacher partners:
  o I had a lot of interaction with my teacher-partner. We spent everyday together going through and testing what activities we wanted to use.
  o We did not have much interaction until the end of the program when she summed up what she would be taking back with her to her classroom.
  o We worked together everyday. They were great!

• Student comments regarding what their faculty mentor could have done differently to enhance the student’s experience:
  o Nothing.
  o Nothing. I loved working with my teacher partners. They were great.
  o Thought of more ways to incorporate me, my questions, and ideas into how she was developing her lesson plans.

Interactions with graduate/post-doc mentors:

• 2 students worked with a graduate or post-doc mentor

• 1 student reported meeting with his/her graduate or post-doc mentor 25 times per month. 1 student reported that the number of meeting with his/her graduate or post-doc mentor was “about right”.

• Student comments regarding interactions with graduate/post-doc mentors:
  o In Dr. Cola’s lab there were a number of grad students and a post-doc. They all provided helpful feedback to our project when we did our weekly presentation.
  o The graduate student I worked with taught me everything I learned this summer and was a tremendous help on my poster and was able to answer any questions I had.

Interactions with high school students:

• 1 student reported working with high school students; he/she provided the following comment about this aspect of the program: “We held a camp for 25 students. This gave me experience “in the classroom.” I was glad to be able to participate in the camp.”

Research skills acquired during the program:

• Student comments:
  o I had never researched before, so I feel like I gained the ability to understand research in general.
  o The ability to read research journals and find applicable information from them

Teaching skills acquired during the program:
• Student comments:
  o I learned about coming up with a lesson plan. Also I learned about how to manage the time of a class period as it relates to an activity.
  o I was able to talk to my teacher mentors and understand what it is like in the classroom
  o The ability to communicate complicated material on an easy-to-understand level

Plans for future interactions with teacher partners:

• 2 students reported that they plan to continue interacting with their teacher partners after the Teaching SURE program concludes.
• Student comments regarding planned future interactions with teacher partners:
  o I want to go to his school to help him with the lesson that we planned.
  o Just email and maybe come speak to their classes.

Plans for future interactions with faculty mentors:

• 2 students reported that they might continue interacting with their faculty mentors after the conclusion of the Teaching SURE program.
• Student comments regarding planned future interactions with faculty mentors:
  o I would like to come by the lab occasionally and see how everything is going.

Interest in pursuing teaching as a career:

• All three students said it was likely that they would pursue a teaching certification.
• 2 students said that the teaching SURE program had made them somewhat more interested in pursuing a teaching career, while 1 student reported no change in interest level.

Interest in pursuing research as a career:

• 2 students said it was likely that they would pursue a graduate-level degree, while 1 student said it was somewhat likely.
• All three students said that their research experiences in the Teaching SURE program influenced their plans about pursing a graduate-level degree.

Change in potential skills as a teacher resulting from the program:

• All students agreed (2 students) or strongly agreed (1 student) that they believe that they will be a better teacher after having participated in Teaching SURE.
• Student comments about how the Teaching SURE program will help them to be a better teacher:
  o I learned so much about how hard it is to be a teacher and how much work goes into it. This only inspired me more to raise myself up to this level of teaching.
  o It gives you a more inside view on current difficulties in the classroom. I know that it is very important to show connections to jobs.
Impact of the program on GT students’ perceived success on pathway to teaching:

- All students agreed (1 student) or strongly agreed (2 students) that the Teaching SURE program improved their likelihood of success as they move along the pathway towards a teaching career in science or math.

Student comments on what they could have done to enhance their experiences in the Teaching SURE program:

- Asked more questions and tried more ways to get involved with the teacher more.
- I could have become more involved in what other students in the lab were doing.
- Work more in the lab, but I will be doing so in the fall.

Student comments on the extent to which the overall experience fulfilled their expectations:

- It was different than I expected. However it was different in a good way. I didn't get to do the scientific research that I planned on experiencing, but I learned so much about teaching.
- Mostly, I expected to work more with the teacher and learn more about teaching itself, but it was still a valuable experience and I learned a lot.
- Yes. I got lab experience and got to work with students.

Action Plan Component of Teaching SURE

- All three students strongly agreed that they have a clear understanding of what an action plan is.
- 2 students reported having been involved in their teacher partner’s action plan.

Round Table Discussion Component of Teaching SURE

- 1 student agreed somewhat and 1 student agreed strongly that the end of summer round table discussions provided a valuable opportunity for them to articulate the outcomes of their experiences.
- All three students agreed somewhat that additional opportunities like the end of summer round table discussions would have been valuable.
- Student comments on how the end of summer round table discussions could be improved:
  - The time, place, and expectations should have been more clearly communicated
Student perceptions of usefulness of the various program components:

<table>
<thead>
<tr>
<th>Component of GIFT orientation:</th>
<th>Not at all useful</th>
<th>Somewhat useful</th>
<th>Very useful</th>
<th>Did not attend</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIFT overview video</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Presentation on linking GIFT action to school improvement plan</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Amazing Race inquiry activity</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Facilitator-led community group meeting (at lunch)</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Overall GIFT orientation program</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

3.c.ii. Higher education pathway mentoring

The mentoring component of STEP, in which students work in close collaboration with high school teachers, continued with the 2009-2010 group of Fellows. The mentoring component of this program will be replicated in SLIDER, a new project similar in nature to STEP.

In SP10, Tech to Teaching had one FACES/STEP student take 8803 PR without 8802 TL. The student found it to be a valuable experience, but acknowledged that she didn’t get as much out of it as she would of had she had the prerequisite 8802 TL course. It should be noted that this student was allowed to use the STEP summer training course 8711 as a pre-requisite to the practicum in place if 8802 TL. However, the student had taken 8711 before the curriculum revision that integrated more 8802TL concepts into the 8711 STEP course. Two additional STEP Fellows will do the same in SP11, but they took 8711 after the curriculum re-design so we anticipate a richer experience for those students.

In general the practicum has worked well. Students find the weekly meeting with other practicum students (called the learning community) to be a very valuable part of the practicum experience even considering that the graduate students are from all different disciplines. One challenge has been that the mentor quality is uneven. Since the graduate student's mentor is a volunteer that we don't have any significant contact with, the mentoring quality is uneven. In Chemical engineering, a faculty member
vets all students who want to do a practicum and selects mentors from the best teachers in the department which helps tremendously. Extending that model to other departments is something we will investigate in the future. However because the course that is a pre-requisite for the practicum (8802 TL- Foundations of Teaching and Learning in Higher Education) focuses on how to be a reflective practitioner and because of the feedback from the peers in the learning community and CETL, the practicum students are still able to get a great deal out of the practicum even if the feedback from the mentor is sparse or the mentor is not teaching in a learner-centered way. One logistical problem we have run into is that the learning community time is not set in advance so as not to exclude students from doing the practicum who wouldn’t be able to make a certain learning community time. However, as a consequence, in SP10 when we had 7 students doing a practicum, it was impossible to find a time that all 7 students could meet so the learning community had to be split into two groups with two meeting times which creates a significant resources requirement of one CETL facilitator for 3 to 4 students. In the future, it could be valuable consider training advanced graduate students who have completed the Tech to Teaching certificate program to be practicum facilitators.

3.d Immersion

The immersion experience for students in the Tech to Teaching program is designed to give them the opportunity to have the full experience of teaching a course. The mechanisms for the K-12 and higher education pathways to allow students to do this have now been developed and piloted. The higher education pathway immersion course was formally offered for the first time in SP10.

3.d.i. K-12 pathway immersion

An opportunity for classroom immersion exists through the CETL 4002 course, in which students work in a classroom for approximately 6 hours a week under the guidance of the classroom teacher.

3.d.ii. Higher education pathway immersion

Many doctoral students at Georgia Tech do not have the opportunity to gain real college teaching experience through their academic department. However, it is vital that students who wish to pursue a career as a higher education faculty member at an institution that values undergraduate teaching have some experience prior to their first job. Therefore, this project has developed the "teaching immersion" for these graduate students to gain this valuable experience in a mentored environment.

So far we have had one student do the immersion, here at Georgia Tech, in Industrial Engineering, and the student had been an instructor of record without a mentor previously. We do not have sufficient data to draw conclusions about that experience. In SP11, we will have one additional student doing an immersion, again at Georgia Tech.

We have not had many students doing the immersion yet. We have tried to allow students closer to graduating to take the first course of the Tech to Teaching certificate program, CETL 8802 TL. Therefore, those students have graduated before there was time to complete the practicum and 8802 CD which are pre-requisites to the Immersion. In FA09 we piloted the 8802 CD course which then created a pool of 5 potential immersion candidates for SP11 or later. One is graduating at the end of the month, one is planning to do the immersion in SP11, and one already did the immersion (she was the pilot student) in
lieu of a practicum because she had been an instructor of record before taking the first course 8802 TL. One plans to do the immersion later on in his studies and one is graduating in May 2011 and doesn't want to be doing an immersion during his last term.

As for our partner schools, those partnerships have not been used yet. When we do have students ready for that step, one challenge that has been brought up is the fact that students will be full-time students at Tech and have a TA or RA still at Tech yet would have the responsibility for teaching at another school. This will be hard to balance along with the commute time. Due to the low pay for teaching one course at GPC or Spelman, there is not an opportunity for a student to teach a course there in lieu of being a TA or RA at Tech. It would be ideal if a pool of money was available for students wishing to do their immersion elsewhere so that they could receive full funding and a tuition waiver for the term in which they are teaching elsewhere.

Going forward, it may be prudent to focus on making sure all graduate students know about Tech to Teaching early in their career so if they want to do all the steps they have the time to do so. Another possibility that would aid movement through the program would be to offer 8802 TL (the gateway course) both fall and spring term (instead of just in spring), but this could not be done without additional resources.

The FACES program is now fully integrated with Tech to Teaching where students who wish to do the FACES practicum take 8802 TL the term before and then do the Tech to Teaching practicum. The FACES program decides who is approved to do so and provides a $5000 stipend.

3.e. Induction/Community

The final step in the Tech to Teaching ladder of programming is to maintain a sense of community and support for the Georgia Tech students as they transition into being alumni with careers in teaching. These components are still being designed and developed.

3.e.i. K-12 pathway induction/community

A retreat for new teachers participating through the NOYCE programs affiliated with Tech to Teaching was offered in October 2010, but students completing the pathway through other means are not yet integrated into these retreats. The retreat is a full day event with guest speakers, resource and professional development sessions, and roundtable discussions. Additional details about immersion efforts for the K-12 pathway will be included in next year’s report.

3.e.ii. Higher education pathway induction/community

The main induction/community effort which has been undertaken thus far is the development of the CETL 4 students website. The website launched in Fall, 2009. Below is a description from the site of its goals and contents.
“The Center for the Enhancement of Teaching and Learning maintains this T-Square site for all Georgia Tech undergraduate and graduate teaching assistants (UTAs and GTAs) as well as graduate students interested in a future career as a faculty member. Through this web resource, students will be able to get responses to questions about being a TA at Georgia Tech, receive announcements about CETL workshops and events, and access archived CETL workshop materials and teaching and academic job search resources. The goal of this T-square site is to improve the professional development of all TAs and graduate students at Georgia Tech, improve the quality of teaching and learning in classes that employ TAs, and facilitate the success of those graduate students seeking a faculty career.

Key highlights:

- View and sign up for CETL professional development workshops on communications, teaching, and the academic job search (see "CETL Workshops")
- Obtain handouts and more information from previously held CETL workshops (see "resources")
- Link to CETL's Delicious word cloud (see "web resources"). Each tag on this page takes you to a list of good web resources on that topic through www.delicious.com. Some great web resources on teaching, academic jobs, graduate school, and communications are bookmarked for easy access!
- Career timelines for Master's and Doctoral students (see career timeline folder in "resources"). If you want to land the perfect job when you graduate, we suggest that you use the timelines and start preparing for life after graduation early in your graduate career.
- Ability to ask questions about teaching from experienced TAs (see "Ask a TA")

The site has gotten a considerable amount of traffic; visits to the site during each month are shown in Figure 2.

Figure 2. Monthly traffic on the CETL 4 Students website
4. Tracking *Tech to Teaching* participant activities

Counts of students taking part in one or more *Tech to Teaching* activities during the 2009-2010 school year suggest a high level of participation; counts of unique students participating during each semester are provided in Table 12.

Table 12: Participant counts for all *Tech to Teaching* activities

<table>
<thead>
<tr>
<th>Semester</th>
<th>Unique participant count:</th>
</tr>
</thead>
<tbody>
<tr>
<td>FA09</td>
<td>413</td>
</tr>
<tr>
<td>SP10</td>
<td>337</td>
</tr>
<tr>
<td>SU10</td>
<td>60</td>
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</tbody>
</table>

Development is currently underway for a database of all *Tech to Teaching* participants to date. This database includes student demographics in addition to a listing of activities for each student. The *Tech to Teaching* assessment team has received IRB approval for the collection of this data and the data for all *Tech to Teaching* participants from SP09 through SU10 was recently provided by the Office of Institutional Research and Planning. The database includes the following data for over 700 unique *Tech to Teaching* participants:

- Gender
- Race-Ethnicity
- GPA
- Age
- Date of Entry to GT
- Grad or undergrad
- Class standing
- Email
- Transfer status & transfer institution if applicable
- Co-op status
- Full-time or part-time status

The database will be used to help address the following questions:

- How does the overall performance of students interested in teaching oriented career paths compare with those pursuing more traditional pathways at Georgia Tech?
- Are there specific identifying characteristics representative of the student population at Georgia Tech interested in teaching oriented career paths?
- What is the typical initial (and continuing) student interaction with *Tech to Teaching* project elements?
Appendices.

Appendix A. CETL 4001 and 4002 course assignments and evaluations.

Note: The assignment structure for FA09 was substantively equivalent to that from SP09, and as such this table is a replication of that from the previous annual report. Analysis of performance data from the FA09 semester was similar to that previously reported for SP09. No new major insights regarding student performance were gained from this cohort. This is not particularly surprising since these courses have been offered for a number of years and no major changes were made to the curriculum or instruction for FA09.

<table>
<thead>
<tr>
<th>Course</th>
<th>Assignment</th>
<th>Description</th>
<th>Assessment Tool</th>
<th>Analysis of Student Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4001</td>
<td>Journal</td>
<td>Students reflect on weekly course/chapter content. Students are also required to practice using graphic organizers to organize their</td>
<td>None – students must have one journal entry per week or chapter depending on instructions given by</td>
<td>Research indicates teachers’ beliefs about teaching and learning are important in determining how teachers teach including what educational practices they adopt. These assignments provide opportunities for students to reflect on their beliefs about teaching</td>
</tr>
</tbody>
</table>

- What are common strengths that students exhibit in terms of teaching and learning knowledge/skills/dispositions, and why are these strengths important in seeking and performing in teaching careers?
- What are common areas that students need to improve and what kinds of things can be done to address these areas?
- Other comments/insights you may have had about student learning related to these tasks
<table>
<thead>
<tr>
<th>Course</th>
<th>Assignment</th>
<th>Description</th>
<th>Assessment Tool</th>
<th>Analysis of Student Performance</th>
</tr>
</thead>
</table>
|        |            |             | instructor. Two entries using graphic organizers are required. | • What are common strengths that students exhibit in terms of teaching and learning knowledge/skills/dispositions, and why are these strengths important in seeking and performing in teaching careers?  
• What are common areas that students need to improve and what kinds of things can be done to address these areas?  
• other comments/insights you may have had about student learning related to these tasks |
<p>| 4001   | Educational Philosophy paper | Students identify their educational philosophy and relate philosophy to course content. | Checklist – Writing guide (please see Appendix B) | and learning and connect those beliefs to topics covered in the course. Some students have expressed difficulty in completing these assignments. They indicated they are not used to expressing their opinions on topics because they have not been regularly provided this opportunity while students at Tech. |
| 4001   | Classroom Observation | Students observe instructional practices in the subject area they are interested in. | Observation template (please see Appendix C) | Overall, students indicated that conducting an observation in a school different from the schools they have attended helps them to understand education in a different context. They also indicate course content gives them a framework for understanding the teaching and learning practices |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Assignment</th>
<th>Description</th>
<th>Assessment Tool</th>
<th>Analysis of Student Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4001</td>
<td>Current Issues Paper and Presentation</td>
<td>Students explore a current issue in education based on their individual interests.</td>
<td>Rubric (please see Appendix D)</td>
<td>Overall, students have used this assignment to not only report on but provide an analysis of a current topic in education. Students use various resources including educational journals, texts and digital media. This assignment relates to “teaching as a profession” research literature.</td>
</tr>
</tbody>
</table>

- What are common strengths that students exhibit in terms of teaching and learning knowledge/skills/dispositions, and why are these strengths important in seeking and performing in teaching careers?
- What are common areas that students need to improve and what kinds of things can be done to address these areas?
- other comments/insights you may have had about student learning related to these tasks they observe.
<table>
<thead>
<tr>
<th>Course</th>
<th>Assignment</th>
<th>Description</th>
<th>Assessment Tool</th>
<th>Analysis of Student Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4002</td>
<td>Field Experience/School Context Portrait</td>
<td>Students complete an in-depth study of the school they are working in.</td>
<td>None</td>
<td>A school context portrait provides an overview of the field experience school. This portrait includes demographic information and testing data. Some students indicated this assignment allows them to develop an understanding of the environment and achievement levels in the school where they are completing the field experience. The field experience provides opportunities for students to tutor students and teach classroom lessons. They also observe instructional practices in their chosen subject area. Some students have made the decision to not enter the profession based on the field experience.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### CETL 4001/4002 Evaluation Matrix

<table>
<thead>
<tr>
<th>Course</th>
<th>Assignment</th>
<th>Description</th>
<th>Assessment Tool</th>
<th>Analysis of Student Performance</th>
</tr>
</thead>
</table>
| 4002   | Microteaching lesson| Students plan/teach a unit in the subject area they are interested in.      | Unit Planning Template (please see Appendix E) 5-E Instructional Model Template (please see Appendix F) | - What are common strengths that students exhibit in terms of teaching and learning knowledge/skills/dispositions, and why are these strengths important in seeking and performing in teaching careers?  
- What are common areas that students need to improve and what kinds of things can be done to address these areas?  
- Other comments/insights you may have had about student learning related to these tasks  
Overall, students are extremely knowledgeable about the content areas they are interested in teaching. In 4001 they begin to develop an understanding of educational foundations and the psychology of teaching and learning. Additional coursework is necessary in order to understand instructional practices. They can begin to develop this understanding in 4002. Many of the students taking the 4001 and 4002 courses have not decided to enter teaching as a profession and many have indicated they are simply taking the courses as free electives. However, the courses have identified students who are interested in teaching and many have indicated the courses have helped them to make |
<table>
<thead>
<tr>
<th>Course</th>
<th>Assignment</th>
<th>Description</th>
<th>Assessment Tool</th>
<th>Analysis of Student Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• What are common strengths that students exhibit in terms of teaching and learning knowledge/skills/dispositions, and why are these strengths important in seeking and performing in teaching careers?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• What are common areas that students need to improve and what kinds of things can be done to address these areas?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Other comments/insights you may have had about student learning related to these tasks</td>
</tr>
</tbody>
</table>

that decision.
CETL 4001: Educational Philosophy Paper Checklist

<table>
<thead>
<tr>
<th>Category</th>
<th>Specific Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose of Education</td>
<td></td>
</tr>
<tr>
<td>Core Beliefs</td>
<td></td>
</tr>
<tr>
<td>Teacher Roles and Responsibilities</td>
<td></td>
</tr>
<tr>
<td>Classroom Approaches to Learning</td>
<td></td>
</tr>
<tr>
<td>Diversity</td>
<td></td>
</tr>
<tr>
<td>Linkage to Theorists</td>
<td></td>
</tr>
</tbody>
</table>
**INFORMAL CLASSROOM OBSERVATION**

Teacher_________________________         Subject_________________________
Date/Time________________________

Standard(s)
______________________________________________________________________________
______________________________________________________________________________

<table>
<thead>
<tr>
<th>I. Observations</th>
<th>Yes</th>
<th>No</th>
<th>Not Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. ENVIRONMENT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean/orderly environment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course-related bulletin boards</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student work and rubrics are displayed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B. STUDENT BEHAVIOR (Students…)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entered the room orderly and were seated without delay</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are attentive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have necessary learning tools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are actively engaged in the lesson</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have completed homework assignment(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete assignment/activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assist other students with problem solving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C. INSTRUCTIONAL FOCUS (Teacher…)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduces learning objective(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gives multiple real world explanations/examples</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varies methods of instruction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilizes technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involves all students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moves among students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilizes Multiple assessments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitates learning and supports more self-reliant learners</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asks questions to check for understanding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides positive feedback</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervenes positively in class disruptions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides homework activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides lesson closure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Comments:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Mr. Rodney Ray, Principal, The School of Technology, The New Schools of Carver, Atlanta Public Schools, 2005

II. Physical Diagram of Classroom

III. Relationship of Observation to Course Material
Appendix D. Rubric for current issues student presentations in CETL 4001 class

<table>
<thead>
<tr>
<th>Evaluating Student Presentations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization</strong></td>
</tr>
<tr>
<td><strong>Subject Knowledge</strong></td>
</tr>
<tr>
<td><strong>Graphics</strong></td>
</tr>
<tr>
<td><strong>Mechanics</strong></td>
</tr>
<tr>
<td><strong>Eye Contact</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization</strong></td>
<td>Audience cannot understand presentation because there is no</td>
<td>Audience has difficulty following presentation because student</td>
<td>Student presents information in logical sequence which</td>
<td>Student presents information in logical, interesting sequence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sequence of information.</td>
<td>jumps around.</td>
<td>audience can follow.</td>
<td>which audience can follow.</td>
<td></td>
</tr>
<tr>
<td><strong>Subject Knowledge</strong></td>
<td>Student does not have grasp of information; student cannot</td>
<td>Student is uncomfortable with information and is able to answer</td>
<td>Student is at ease with expected answers to all questions, but</td>
<td>Student demonstrates full knowledge (more than required) by</td>
<td></td>
</tr>
<tr>
<td></td>
<td>answer questions about subject.</td>
<td>only rudimentary questions.</td>
<td>fails to elaborate.</td>
<td>answering all class questions with explanations and elaboration.</td>
<td></td>
</tr>
<tr>
<td><strong>Graphics</strong></td>
<td>Student uses superfluous graphics or no graphics</td>
<td>Student occasionally uses graphics that rarely support text and</td>
<td>Student's graphics relate to text and presentation.</td>
<td>Student's graphics explain and reinforce screen text and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>presentation.</td>
<td></td>
<td>presentation.</td>
<td></td>
</tr>
<tr>
<td><strong>Mechanics</strong></td>
<td>Student's presentation has four or more spelling errors and/or</td>
<td>Presentation has three misspellings and/or grammatical errors.</td>
<td>Presentation has no more than two misspellings and/or grammatical</td>
<td>Presentation has no misspellings or grammatical errors.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>grammatical errors.</td>
<td></td>
<td>errors.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Eye Contact</strong></td>
<td>Student reads all of report with no eye contact.</td>
<td>Student occasionally uses eye contact, but still reads most of</td>
<td>Student maintains eye contact most of the time but frequently</td>
<td>Student maintains eye contact with audience, seldom returning to</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>report.</td>
<td>returns to notes.</td>
<td>notes.</td>
<td></td>
</tr>
<tr>
<td>Elocution</td>
<td>Student mumbles, incorrectly pronounces terms, and speaks too quietly for students in the back of class to hear.</td>
<td>Student's voice is low. Student incorrectly pronounces terms. Audience members have difficulty hearing presentation.</td>
<td>Student's voice is clear. Student pronounces most words correctly. Most audience members can hear presentation.</td>
<td>Student uses a clear voice and correct, precise pronunciation of terms so that all audience members can hear presentation.</td>
<td></td>
</tr>
</tbody>
</table>

Source: [www.ncsu.edu](http://www.ncsu.edu)
# Unit Plan Template

<table>
<thead>
<tr>
<th>1. Unit Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>First and Last Name</td>
</tr>
<tr>
<td>Electronic Portfolio URL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Unit Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Title</td>
</tr>
<tr>
<td>Unit Summary</td>
</tr>
<tr>
<td>Subject Area</td>
</tr>
<tr>
<td>Grade Level</td>
</tr>
<tr>
<td>Approximate Time Needed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Unit Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targeted Content Standards and Elements</td>
</tr>
<tr>
<td>Essential Questions</td>
</tr>
</tbody>
</table>

| Enduring Understandings |

| Interdisciplinary Connections (Describe how the unit will connect to at least two additional content areas). |
4. **Assessment Plan**

<p>| Before task (s) work begins. | Student work on task (s) and complete tasks. | After task (s) work is completed. |</p>
<table>
<thead>
<tr>
<th>5. Unit Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisite Skills</td>
</tr>
<tr>
<td>Instructional Procedures</td>
</tr>
<tr>
<td>Accommodations for Differentiated Instruction</td>
</tr>
<tr>
<td>Resource Student</td>
</tr>
<tr>
<td>Non-native Speaker</td>
</tr>
<tr>
<td>Gifted Student</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Materials and Resources Required for Unit</td>
</tr>
<tr>
<td>Technology Hardware</td>
</tr>
<tr>
<td>Technology Software</td>
</tr>
<tr>
<td>Printed Materials</td>
</tr>
<tr>
<td>Supplies</td>
</tr>
<tr>
<td>Internet Resources- cited APA style</td>
</tr>
<tr>
<td>Other Resources</td>
</tr>
</tbody>
</table>
Appendix F. 5-E Instructional Model Template for CETL 4002 class

Topic/Concept:

<table>
<thead>
<tr>
<th>Engage</th>
<th>How can I get students interested in this?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explore</td>
<td>What tasks/questions can I offer to help students puzzle through this?</td>
</tr>
<tr>
<td>Explain</td>
<td>How can I help students make sense of their observations?</td>
</tr>
<tr>
<td>Elaborate</td>
<td>How can my students apply their new knowledge to other situations?</td>
</tr>
<tr>
<td>Evaluate</td>
<td>How can I help my students self-evaluate and reflect on the learning?</td>
</tr>
</tbody>
</table>
Standard(s):

Materials:
<table>
<thead>
<tr>
<th>Assignment</th>
<th>Grading Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Reading Assignments and Questions</td>
<td>Submission must reflect that the reading assignment was completed and answers need to reflect that the questions were given some thought. Must submit responses to the forum by the deadline (usually 5pm on Monday). Must respond to at least 8 of the 10.</td>
</tr>
<tr>
<td>4 Homeworks:</td>
<td></td>
</tr>
<tr>
<td>1: Significant Factors Form</td>
<td>Must be completed and submitted by deadline.</td>
</tr>
<tr>
<td>2: VARK and Felder Learning Styles Inventories</td>
<td></td>
</tr>
<tr>
<td>3: CATs Analysis</td>
<td></td>
</tr>
<tr>
<td>4: Teaching Method Analysis</td>
<td></td>
</tr>
<tr>
<td>2 Micro-teachings</td>
<td>Must be completed with assigned team in the time frame allotted.</td>
</tr>
<tr>
<td>Peer Feedback on 2 Microteachings</td>
<td>Must attend team members microteachings and give concrete and constructive feedback using the provided guidelines.</td>
</tr>
<tr>
<td>Self-Assessments of 2 Microteaching</td>
<td>Must complete immediately following the microteaching and solicit feedback from team members in response to items identified in self-assessment process.</td>
</tr>
<tr>
<td>2 Microteaching Analysis Papers</td>
<td>Must be completed and submitted by deadline. Must meet minimum requirements (provided in advance). Analysis Paper instructions are provided in Appendix G.</td>
</tr>
<tr>
<td>Task</td>
<td>Instructions</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1 Lesson Plan A Draft #1</td>
<td>Must be completed and submitted by deadline.</td>
</tr>
<tr>
<td>2 Lesson Plan Drafts to Peer (Lesson Plan A - Draft #2 &amp; Lesson Plan B - Draft)</td>
<td>Must be completed and submitted by deadline. Must meet minimum requirements (provided in advance). Lesson Plan rubric is provided in Appendix H.</td>
</tr>
<tr>
<td>Peer Feedback on 2 Lesson Plan Drafts (A - Draft #2 and B Draft)</td>
<td>Must give concrete and constructive feedback using the provided guidelines.</td>
</tr>
<tr>
<td>3 Classroom Observations</td>
<td>Must be completed by deadline. Classoom Observation instructions provided in appendix I.</td>
</tr>
<tr>
<td>Classroom Observation Analysis Paper</td>
<td>Must be completed and submitted by deadline. Must meet minimum requirements (provided in advance). Classroom Observation Analysis Paper instructions provided in appendix I.</td>
</tr>
<tr>
<td>Teaching Philosophy Draft</td>
<td>Must be completed and submitted by deadline. Must meet minimum requirements (provided in advance).</td>
</tr>
<tr>
<td>Peer Feedback on Teaching Philosophy - Draft</td>
<td>Must give concrete and constructive feedback using the provided guidelines.</td>
</tr>
<tr>
<td>Teaching Philosophy, Final</td>
<td>Must be completed and submitted by deadline. Must meet minimum requirements (provided in advance).</td>
</tr>
<tr>
<td>2 Lesson Plans - Final (A &amp; B) w/analysis of impacts on design &amp; self-assessment</td>
<td>Must be completed and submitted by deadline. Must reach 80% threshold on provided rubric. Lesson Plan rubric is provided in Appendix H.</td>
</tr>
</tbody>
</table>

**Analysis Paper Directions**

The analysis paper should include:

1) What course was the lesson for?
   a) title
   b) required / elective
   c) lower division / upper division / graduate
   d) role in degree program (critical / introductory)
   e) length of classtime (typically) / # of times per week
   f) how long was your microteaching

2) What is the anticipated student make-up of the course?
   a) number of students
   b) grade levels
   c) backgrounds
   d) majors/non-majors
   e) other

3) What knowledge, skills, and attitudes does the instructor expect from students as a result of the lesson (objectives)?

4) What teaching strategies were chosen to achieve the lesson's objectives and why?

5) Which of the lesson's learning objectives did you feel you had met and what evidence did you have
to support your claim? What feedback did you get from your observers? What was the relationship between your assessment and your peers' feedback?

6) What aspects of your teaching did you specifically ask for feedback on? What was your self-assessment of your performance in relation to those aspects? What feedback did you get from your observers? What was the relationship between your assessment and your peers' feedback?

7) What was the most significant thing you thought you did well and why? What feedback did you get from your observers? What was the relationship between your assessment and your peers' feedback?

8) What was the most significant thing you thought you needed to improve on and why? What was your idea for improvement? What feedback did you get from your observers? What was the relationship between your assessment and idea and your peers' feedback?

9) What is your current plan for change for the next lesson plan and microteaching? Please explain your rationale(s).
### Lesson Plan #2 Rubric

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Acceptable</th>
<th>Needs minor changes</th>
<th>Needs major changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td>10</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>All of the goals meet the following criteria.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Measurable</td>
<td></td>
<td>75% - 99% of the goals meet all of the criteria under &quot;acceptable&quot;</td>
<td></td>
</tr>
<tr>
<td>• Describe observable student performance, behavior and achievement.</td>
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<td>OR</td>
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<tr>
<td>• Utilize an action or performance verb that targets the specific level of Bloom’s taxonomy.</td>
<td></td>
<td>Any percentage of the goals are lacking one of the criteria in “Meets Expectations.”</td>
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<tr>
<td>• Clearly written in language students can understand.</td>
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<td>OR</td>
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<tr>
<td>• Level of Bloom’s taxonomy correctly identified.</td>
<td></td>
<td>Any percentage of the goals are lacking two or more of the criteria in “Meets Expectations.”</td>
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<tr>
<td>• Has at least one objective at a higher level of Bloom’s taxonomy (application and above).</td>
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<tr>
<td><strong>Introduction</strong></td>
<td>• Contain plans for sharing learning objectives with students.</td>
<td>• Lack one of the criteria in “Meets Expectations.”</td>
<td>• Lack two or more of the criteria in “Meets Expectations.”</td>
</tr>
<tr>
<td>Feedback/Assessment/Questions</td>
<td>Teaching and Learning Activities</td>
<td>Student-centered</td>
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<tr>
<td>• Assessment + feedback strategies are present and clearly described.</td>
<td>• Activities are explained in detail.</td>
<td>• The lesson is clearly designed to actively involve students for the majority of the lesson.</td>
<td></td>
</tr>
<tr>
<td>• Incorporates as much immediate feedback as possible.</td>
<td>• Plans for debriefing activities are included and clearly described.</td>
<td>• Address a wide variety of student learning styles.</td>
<td></td>
</tr>
<tr>
<td>• Questions included and planned opportunities for students to ask questions.</td>
<td>• Activities are moderately developed.</td>
<td>• The lesson provides for some student participation.</td>
<td></td>
</tr>
<tr>
<td>• Assessment strategies are present but not clearly described.</td>
<td>• Plans for debriefing activities are vague.</td>
<td>• Plan to address a variety of learning styles is present but vague.</td>
<td></td>
</tr>
<tr>
<td>• Incorporates a minimal amount of immediate feedback.</td>
<td>• Assessment strategies are missing or too vague to judge what students have learned.</td>
<td>• Students passively receive information from instructor.</td>
<td></td>
</tr>
<tr>
<td>• Questions included or planned opportunities for students to ask questions, but not both.</td>
<td>• No plans for immediate feedback.</td>
<td>• No consideration given to a diversity of student learning styles.</td>
<td></td>
</tr>
<tr>
<td>Closure/Summary</td>
<td>• Clear and specific plans for students to summarize and review the learning objectives.</td>
<td>• Clear and specific plans for teacher to summarize or review the learning objectives.</td>
<td>• Lesson plan reflects little or no evidence of summarizing activity.</td>
</tr>
<tr>
<td>Integration</td>
<td>• Clear and logical explanation AND congruence between learning objectives, feedback and assessment, and teaching and learning activities.</td>
<td>• Explanation of the connection between learning objectives, assessment, and teaching and learning activities is somewhat vague but congruence between the major three elements is discernable.</td>
<td>• Explanation of the connection between learning objectives, assessment, and teaching and learning activities is missing and/or congruence between major three elements is missing, mismatched, or not present.</td>
</tr>
<tr>
<td>Timing</td>
<td>• Appropriate time breakdown and allotments.</td>
<td>• Time allotments or breakdown need minor adjustments.</td>
<td>• Little or no breakdown of lesson procedure (or excessive breakdown) • Time allotments need major adjustments.</td>
</tr>
<tr>
<td>Stage Directions</td>
<td>• Includes detailed stage directions appropriate for a substitute teacher. • Detailed contingency plans included.</td>
<td>• Includes somewhat vague stage directions. • Contingency plans included.</td>
<td>• No stage directions or includes stage directions that would be impossible for a substitute to duplicate. • No contingency plans.</td>
</tr>
<tr>
<td>Handouts/Powerpoint (Must be included if)</td>
<td>• Aesthetically pleasing (professional looking/not</td>
<td>• Layout inhibits comprehension • Instructions incomplete,</td>
<td>• Indecipherable • Incoherent, no instructions included</td>
</tr>
</tbody>
</table>
| referred to in lesson plan) | handwritten) | unclear | • Unrelated to learning outcomes  
• Excessive amount or referred to in lesson plan template but missing/not turned in. |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>• Instructions clear</td>
<td>• Support learning goals, content relevant and useful</td>
<td></td>
<td></td>
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<tr>
<td>• Support learning objectives, content relevant and useful</td>
<td></td>
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<tr>
<td>• Manageable # of handouts and amount of material on each</td>
<td></td>
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<tr>
<td>• Manageable amount</td>
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*Rubric modified from: edel335-thursday.pbworks.com/f/Unit+Plan+Rubric-335.doc*
Classroom Observation Instructions

Timeline: To be conducted between Oct. 14 and Oct. 30th.
Analysis Paper Due: T Nov. 3, classtime.

PURPOSE OF THE CLASSROOM OBSERVATION:
Your goal is to observe a faculty member in their own classroom environment, record your observations, and analyze how they might apply to your own future teaching experiences. Our hope is that you will gather some ideas of best teaching practices.

Your goal during the observation is to be curious and diplomatic, as an observer to an outside culture would be. When you visit another faculty member's classroom, it is that faculty member's culture that you are visiting! What can you learn from that culture that you can successfully apply to your own teaching practice to help create the culture you want in a classroom?

PROCEDURE:
1. Choose a class to observe for one class period and obtain permission from the faculty member.
   You may choose to observe faculty in your department OR you may want to arrange to observe a class in a department outside of your discipline. (Some students find it easier to focus on the process of teaching when not as familiar with the content presented.) We recommend that you make a strong effort to observe a faculty member who is known for being an effective teacher.

   If you have trouble finding an available faculty member, we can put you in touch with faculty who are willing to meet with you and to be observed.

2. Arrange a pre-class meeting with the faculty member.
   Use the meeting to discuss situational factors, background of the course and your assignment.

   - Situational Factors:
     - required / elective, lower division / upper division / graduate, role in degree program (critical / introductory), length of class time (typically) / # of times per week (NOTE: You should be able to look these factors up and just confirm with the faculty member).
     - number of students, grade levels, backgrounds, majors/non-majors, other
     - course goals, the overall course structure, how the class periods are typically conducted (teaching and learning activities), course assessments (ask for a copy of the syllabus)
     - how the class period to be observed fits in the overall course, what the objectives for that day are
• **Background of the course:**
  o What feedback the faculty member already has about/from the class
  o Typical attendance/involvement/response of students
  o Any unique characteristics of the course and/or students.

• **Your Assignment:**
  o Share the purpose of this assignment with the faculty member
  o Sharing what elements of the overall classroom dynamic you will be paying attention to (see list on page 2 & 3).

3. **Attend class and conduct the observation. Take notes during your observations to help when you write your analysis.**
   Be as descriptive as you can when you take notes. The following points are the focus areas you should be concentrating on.

   **Class session structure**
   
   • Class beginning and initial engagement
   
   • Incorporation of conceptual material into the topic of the day
   
   • Organization of lecture material or other content
   
   • In-class activities, time spent on each and transitions between
   
   • Conclusion and wrap-up at the end of class

   **Delivery**

   • Stimulation and maintenance of student interest throughout the class
   
   • Creation of classroom learning atmosphere
   
   • Command and flexibility of subject matter
   
   • Connection of various topics to each other
   
   • Use of props, visual aids, illustrations and examples, if any
   
   • Use of real-life anecdotes and examples to illustrate abstract ideas
   
   • Uses of voice and body language
   
   • Use of the chalk/white board
**Classroom interaction**

- Questions that encourage students to think about and engage with the subject
- Wait time after asking questions
- Reactions and responses to student questions and comments
- Ways to promote interaction involving everyone in the class
- How to handle questions that might divert the class from the topic
- Explanation of instructions for completing required tasks

4. *In the interest of future 8802 TL students, please follow up your completed observation with a thank-you note or email to the faculty member you observed. Thank you.*

5. *Prepare a 2 page, typed, single-spaced analysis of your observation experience. Upload to the appropriate folder in the Assignments section of t-square by classtime on Nov. 3rd and bring one copy with you to class that day.*

**Your analysis paper should include:**

1) Situational Factors:
   - required / elective, lower division / upper division / graduate, role in degree program (critical / introductory), length of class time (typically) / # of times per week
   - (NOTE: You should be able to look these factors up and just confirm with the faculty member).
   - number of students, grade levels, backgrounds, majors/non-majors, other
   - course goals, the overall course structure, how the class periods are typically conducted (teaching and learning activities), course assessments (ask for a copy of the syllabus)

2) Background of the course:
   - What feedback the faculty member already has about/from the class
   - Typical attendance/involvement/response of students
   - Any unique characteristics of the course and/or students.

3) How the class period you observed fits in the overall course, what the objectives for that day were, which teaching strategies were used that day
4) What was the value of the pre-observation meeting with the faculty member?

5) What was your overall impression of the class period?

6) What did you observe concerning the nature of the class session structure, the delivery, and the classroom interaction? Please be sure to include a list of best practices you observed and why they may be applicable to your own teaching practice in the future.

**NOTE:** If the faculty member expresses an interest in meeting with you after you have done the observation, please accept. However, this is **not** required and you do not need to offer this option. If you do meet, start by asking the faculty for their analysis of the class period. Then you can discuss aspects of the class period that you found interesting, challenging, most helpful, surprising, confusing, instructive, etc. You may wish, for example, to hear more about the rationale behind an instructional choice, ask for insights or ideas on best practices from the faculty member’s experience with a difficult situation, or discuss strategies for rapport-building with students. The point is not to give the faculty member an evaluation of his/her teaching but to consider what can you learn from that teacher that you can apply to your own teaching practice.

**Modified from:** cndls.georgetown.edu/.../Classroom_Observation_Instructions.pdf
# Tech to Teaching Practicum Requirements (for Mentee)

**CETL 8803 PR (3 credits total)**

Last updated: 12/17/09

<table>
<thead>
<tr>
<th>2 credits worth of practicum (done with mentor)</th>
<th>1 credit worth of practicum (done with CETL)</th>
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<tbody>
<tr>
<td>• Attendance at every class period</td>
<td>• Attendance and participation at each 8803 course meeting (weekly or every other week depending on schedule of participants)</td>
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<tr>
<td>• Weekly meeting with mentor</td>
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<td></td>
<td>• Completed practicum personal goals, contract “forms,” and schedule</td>
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<tr>
<td>• Discussion with mentor about course syllabus, personal practicum goals, practicum roles and responsibilities, and schedule</td>
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<tr>
<td>• Meeting with mentor before each class delivery</td>
<td>• Completed pre-class delivery form for each class delivery (See * on page 2 for possible questions)</td>
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<tr>
<td>• Ownership (design and delivery) of the following &quot;class deliveries&quot;:</td>
<td>• Lesson plan and all accompanying files for all of the course deliveries.</td>
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<tr>
<td>o One 5-min introduction of self and research to the class (suggested timing: during week 1 to 2 of course)</td>
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<tr>
<td>o One 10 - 15 minute part of a class meeting (suggested timing: during week 3 to 5 of the course)</td>
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<tr>
<td>o Two full class sessions (suggested timing: during week 6 - 14 of the course, not during dead week)</td>
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<tr>
<td>o It is recommended that the introduction and partial class delivery be separated by at least 2 weeks. It is recommended that the partial class delivery and the 2 full class deliveries be 3 weeks apart.</td>
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<tr>
<td>• Ownership and implementation of all teaching tasks associated with the two full class deliveries (Example: choosing readings, posting files to t-square, writing homework or exams problems, making and copying handouts for class time, getting and setting up demonstrations, etc.) or equivalent.</td>
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<tr>
<td>Task</td>
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<tr>
<td>Other items as agreed to by both mentor and mentee (Example: holding office hours, designing an assignment or complete exam, etc.)</td>
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<tr>
<td>Discussion with mentor about the final grade process (how to review student performance and decide what grade to assign each student).</td>
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<tr>
<td>All class deliveries will be observed by mentor. Meeting with mentor after each class delivery</td>
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<tr>
<td>All full class deliveries will be observed by one peer in the 8803 practicum</td>
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<tr>
<td>At least one full class delivery will be videotaped (possibly both based on scheduling challenges for CETL/peer observation and feedback component of the practicum) to aid self-assessment</td>
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<tr>
<td>Gather student feedback on all full class deliveries (form provided)</td>
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<tr>
<td>CETL will observe one class delivery (based on staffing availability)</td>
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<tr>
<td>Interview the faculty mentor OR another faculty member about life as a faculty member and academic job search advice</td>
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<tr>
<td>Review 2 peers class deliveries and give peer feedback at 8803 practicum course meetings.</td>
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<tr>
<td>Self-assess after all class deliveries</td>
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<tr>
<td>Receive peer, student, and CETL staff (depending on staffing availability) feedback</td>
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<tr>
<td>1-2 page analysis paper of self-assessment and mentor, student, CETL staff (if provided), and peer feedback for two full class deliveries</td>
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<tr>
<td>Interview a second faculty member from a different type of university/college about life as a faculty member and the academic job search</td>
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<tr>
<td>Share and discuss interview results with other practicum participants at a 8803 course meeting</td>
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<tr>
<td>Discussion with faculty mentor about the mentor and mentees teaching philosophies</td>
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<tr>
<td>Write or revise Teaching Philosophy Statement</td>
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<tr>
<td>Final meeting with mentor for overall evaluation (form/guidelines provided)</td>
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<tr>
<td>Final Report on practicum experience (2 pages)</td>
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