In 1997 Stanford’s Faculty Senate created a Teaching Assistant Oversight Committee (TAOC) to ensure that departments and faculty were fulfilling their responsibility “to provide TAs with all the necessary training for their teaching duties.” Selected highlights from the 2008 biennial TAOC departmental survey on TA training are presented in this booklet.
<table>
<thead>
<tr>
<th>CONTENTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview of Results</td>
<td>2</td>
</tr>
<tr>
<td>Orientation/Training Seminars</td>
<td>3</td>
</tr>
<tr>
<td>at the beginning of the school year or quarter for new TAs</td>
<td></td>
</tr>
<tr>
<td>Pedagogy Courses</td>
<td>4</td>
</tr>
<tr>
<td>or opportunities for ongoing discussion with peers and faculty</td>
<td></td>
</tr>
<tr>
<td>during the first year of teaching</td>
<td></td>
</tr>
<tr>
<td>Mentoring TAs</td>
<td>5</td>
</tr>
<tr>
<td>by faculty or peers</td>
<td></td>
</tr>
<tr>
<td>Opportunities for Practice</td>
<td>6</td>
</tr>
<tr>
<td>or simulated teaching</td>
<td></td>
</tr>
<tr>
<td>Midterm or Formative TA Evaluation</td>
<td>7</td>
</tr>
<tr>
<td>as well as an end-of-term or summative TA evaluation process</td>
<td></td>
</tr>
<tr>
<td>TA Handbooks</td>
<td>8</td>
</tr>
<tr>
<td>customized by department (online or in print)</td>
<td></td>
</tr>
<tr>
<td>An Archive</td>
<td>9</td>
</tr>
<tr>
<td>of TA training materials and courses</td>
<td></td>
</tr>
<tr>
<td>Professional Development</td>
<td>10</td>
</tr>
<tr>
<td>preparing future professors and professionals</td>
<td></td>
</tr>
<tr>
<td>Customized Presentations</td>
<td>11</td>
</tr>
<tr>
<td>by CTL staff</td>
<td></td>
</tr>
<tr>
<td>CTL Contact Information</td>
<td>12</td>
</tr>
<tr>
<td>Members of the Teaching Assistant Oversight Committee</td>
<td></td>
</tr>
</tbody>
</table>
In March of 2000, the TAOC issued a succinct set of guidelines on effective TA training. Leaving ample room for departmental or program initiatives, the guidelines emphasized only three requirements:

- Each department should designate an Academic Council faculty member to take responsibility for TA training.
- The department should establish a program that assures TAs of training for, and supervision while, teaching.
- Training should consist of two main elements:
  1. General principles of effective teaching and university policies relevant to teaching. Although this form of training is generally provided by the Center for Teaching and Learning, departments may choose to do it themselves.
  2. Discipline-specific pedagogy, provided by the departments. Departments may—and often do—request CTL’s assistance in designing and/or delivering this kind of training as well.

The aim of this booklet is to provide departments with examples from across the campus of pedagogical structures and principles that are working effectively. These examples are selective and not exhaustive by any means, but most can be adapted to any discipline or department. We hope you find this booklet useful and inspiring.
OVERVIEW OF RESULTS

The literature on TA training suggests that effective programs often share the following characteristics:

• The program takes as its starting point the type of teaching that is expected of TAs in the department (such as reviews, discussions, or labs).
• The program is designed with input from experienced TAs and is modified during its early iterations based on feedback from the TAs themselves.
• The training program is consistent with, and, indeed, buoyed by, a departmental climate of support for teaching.
• The training acknowledges that some TAs start with considerable experience or inherent ability and can contribute to, as well as benefit from, the program. In the same vein, the program progresses through stages so that as TAs gain experience, they can still benefit from advanced elements of the program.
• The training prepares TAs not only for their immediate TA responsibilities, but for their future careers.

The results of our Stanford survey show that TA training tends to be most effective when programs have one or more of the following structures in place:

• Orientation/training seminars at the beginning of the year or quarter for new TAs
• A pedagogy course or opportunities for ongoing discussion with peers and faculty during the first year of teaching
• Opportunities for TAs to be mentored by faculty or peers
• Opportunities for practice or simulated teaching
• A midterm or formative TA evaluation, as well as an end-of-term or summative TA evaluation process
• A customized departmental TA handbook, online or in print
• An archive system for TA training materials and courses
• Professional development opportunities
• Customized presentations by CTL staff

In the pages that follow, we present examples of these practices in action in the humanities, the social sciences, and the sciences and engineering. We hope these examples will begin or continue a meaningful conversation about TA training in your department or program and provide you with useful resources across campus.
ORIENTATION/TRAINING SEMINARS
at the beginning of the school year or quarter for new TAs

Humanities
Orientation, training workshops, and seminars serve a variety of functions for beginning humanities TAs. English second-year graduate students complete an intensive pedagogy workshop in Fall Quarter to prepare them for teaching in the Program in Writing and Rhetoric in the Winter and Spring Quarters. At the beginning of the academic year, the Language Center sponsors workshops for each language department on topics such as proficiency assessment, second-language literacy teaching, and language learning strategies. In smaller departments, such as Asian Languages and Art History, TAs meet with the course instructors before the start of the course to review the syllabus, possible teaching strategies, and university policies.

Social Sciences
TA training in the social sciences ranges from focused discussions about issues that arise in certain classes to formal presentations delivered by CTL staff and award-winning TAs. Some departments and programs, such as the Introductory Economics Center, organize an intensive training program for their TAs right before the academic year starts. Other departments, such as Sociology and Linguistics, require a quarter-long seminar on teaching for first-year TAs. Communication requires its students to participate in the department’s TA training program during Spring Quarter of their first or second years, in preparation for TA duties the following school year.

Sciences and Engineering
Initial orientations take several distinct, yet successful, forms among science and engineering departments. Many, such as Geological and Environmental Sciences, Mathematics, and Computer Science, offer a single half-day session designed to complement the university-wide CTL orientation. These departmental sessions focus on getting started and are followed by one or more required topical sessions during the remainder of the quarter. Following a different model, Physics, Chemical Engineering, and Chemistry hold multi-day orientations prior to the start of Fall Quarter for incoming graduate students, also accompanied by training opportunities throughout the quarter. New Human Biology Course Associates (CAs) start the Fall Quarter with a week of training that covers a range of both pedagogical and logistical topics.

SPOTLIGHT ON CHEMICAL ENGINEERING
Chemical Engineering graduate students are TAs during the 2nd, 3rd, and/or 4th year of pre-doctoral study. In 2007–08, the department expanded support to include a new two-day, customized training program as well as an expanded Mentor TA component. The Fall Quarter training program—closely modeled on CTL’s university-wide TA Orientation event—includes a welcome to teaching by the department chair and addresses topics such as:
- Essential University Policies
- Effective Teaching Practices
- Managing Faculty/TA Partnerships
- Grading
- Ongoing Teaching Support

Case studies and teaching scenarios most relevant to Chemical Engineering TAs are incorporated throughout. At the start of the quarter, in which they teach for the first time, new TAs attend a CTL-led practice teaching workshop and meet with a Chemical Engineering Mentor TA to get advice and set individual communication and teaching goals. The Mentor TA then attends at least one session in which the new TA is leading section or holding office hours, offers feedback on the process, and meets again at the end of the quarter to debrief the experience and set new goals for the future.
**Humanities**

Several humanities departments integrate pedagogy coursework into their graduate student curriculum by requiring students to take a series of seminars or workshops over a period of several quarters. History graduate students take an initial pedagogy course in the Spring Quarter of their first year in preparation for second-year teaching duties. Over the next two years, they take workshops in classroom management and course design. English graduate students take a mandatory pedagogy course in the first year geared toward TAing for literature courses. Philosophy requires TAs to take the Teaching Methods seminar in both their first and second years. Many other departments, such as Music and Religious Studies, anchor their pedagogical training with a quarter-long course covering teaching strategies, student learning styles, methodology, and university policies. Graduate students in foreign language departments take the three-credit course offered by the Language Center, “The Learning and Teaching of Second Languages.” Art History and the Language Center supplement their pedagogy coursework with ongoing training during the TAs’ teaching quarter. Art History TAs take a Teaching Praxis course with the course instructor to discuss solutions to pedagogical issues that may arise during the course of the quarter, while the Language Center’s coordinators organizes regular meetings to discuss pedagogical issues specific to the teaching of different languages.

**Social Sciences**

The Sociology TA training program consists of an informal Fall Quarter proseminar and a mandatory Spring Quarter seminar on teaching at Stanford for first-year graduate students. The proseminar provides a forum for discussing graduate student concerns and for orienting new graduate students to the faculty, department, and university resources for research and teaching, and to begin the process of general professional development. The purpose of the Spring Quarter seminar is to develop TA and teaching skills generally and to introduce teaching policies and procedures specific to the university and the department. Communication offers a one-unit, mandatory pedagogical course to first- and second-year students in which experienced TAs and selected professors speak about university policies and teaching strategies and skills, such as grading and creating papers and multiple-choice exams, and techniques for leading discussions and review sessions.

**Sciences and Engineering**

Energy Resources Engineering has a two-quarter, faculty-led pedagogy sequence in which communication skills play a central role. ENERGY 259 focuses on a variety of specific skills needed by TAs, and is followed by ENERGY 359, in which graduate students develop and present a lecture with support and feedback from a faculty mentor. Several departments, such as Mathematics and Computer Science, have a mandatory quarter-long pedagogy course that includes opportunities for practice teaching and covers strategies for running effective sections. Supplementing this course in Mathematics is an optional teaching lunch series that attracts mathematics graduate students and faculty, as well as other members of the Stanford community interested in math education. In Civil and Environmental Engineering, TAs attend the university-wide CTL orientation and then take CEE200, a pedagogy course that addresses grading, one-on-one teaching, group instruction, learning styles, practice teaching, and teaching portfolios, among other topics.
MENTORING TAs
by faculty or peers

Humanities
English and the Language Center both have mentorship programs that involve their beginning instructors. In English, all first-year graduate students are assigned an advanced peer as a mentor. Similarly, in the Language Center, a lecturer or an excellent graduate student serves as a mentor to each new TA and receives a stipend for their work. Many humanities departments take a different approach to peer mentoring, assigning a single advanced graduate student the role of mentor TA. Art History, Music, and Religious Studies all have mentor TAs, who are instrumental in running their TA training and in offering support to other TAs. The History mentor TA conducts workshops for second- and third-year graduate students on classroom management and course design. The Philosophy mentor TA teaches the department’s pedagogy seminar and works closely throughout the year with other TAs and the Director of Graduate Studies. Faculty members who supervise TAs often take over mentoring duties once the new TA begins teaching. For example, faculty in Classics, Philosophy, and Religious Studies also hold frequent meetings with TAs to discuss teaching strategies, collaborate on course activities and assignments, and evaluate results.

Social Sciences
Linguistics has a mentor TA who performs a variety of roles, such as serving as the departmental liaison to CTL, leading a quarter-long teaching seminar for new TAs in partnership with a faculty member, and guiding new and experienced TAs. The TA Coordinator for Economics is an advanced graduate student who observes and videotapes sections, and provides feedback to TAs who are inexperienced or need additional help to improve their teaching.

Sciences and Engineering
Civil and Environmental Engineering has a structured mentor program during the TAs’ first teaching quarter. Unlike more informal mentoring programs, which may wither in practical application, mentor teams set regular meetings in which new TAs are guided to identify areas for their individual teaching development and are assisted toward these goals with the support of experienced peers. Geological and Environmental Sciences pairs beginning and experienced TAs to give new instructors continuing support and to designate a point-person for any questions that come up during the quarter. In the Spring Quarter, before Fall teaching duties commence, incoming Human Biology Core CAs shadow the experienced CAs and are paired with a current CA mentor. Biology uses course head TAs to mentor and support those in multi-TA courses; faculty in the department also serve as mentors to TAs. The mentor TA in Statistics is in charge of TA training and also serves as a CTL liaison.
OPPORTUNITIES FOR PRACTICE

or simulated teaching

Humanities
Opportunities for practice teaching have been incorporated into many different aspects of humanities pedagogy training, from mentoring programs to formal pedagogy coursework. In addition, pedagogy courses in the Language Center, Music, and the Program in Writing and Rhetoric require students to practice teaching as part of their curriculum. Students in these departments prepare sample syllabi and deliver short lectures or segments of a lesson, which are critiqued and evaluated by their fellow students or mentors during their pedagogy courses. English and the Language Center provide their graduate students with an apprenticeship, internship, or practicum opportunity to practice teaching in the undergraduate classroom.

Social Sciences
Experienced and new TAs in the Introductory Economics TA training program participate in practice teaching sessions before the beginning of the academic year. Sociology requires all its new TAs to participate in a practice teaching session as part of its pedagogy course.

Sciences and Engineering
A number of science and engineering departments hold practice teaching sessions in which TAs make short presentations and receive feedback from departmental peers or CTL staff. Geological and Environmental Sciences, Biology, Physics, Chemical Engineering, and Chemistry, for example, hold these sessions during departmental TA orientations or shortly thereafter. Physics, Math, and Energy Resources Engineering also incorporate substantive practice teaching sessions into their pedagogy courses. Geophysics TAs are expected to give at least two lectures in the classes they TA.
Humanities

Many humanities departments encourage their TAs to take advantage of CTL’s midterm evaluation and video consultation service, or to perform their own midterm in-class evaluation. In an effort to assess TAs’ teaching performance, most departments rely on end-of-quarter teaching evaluations as well as on classroom observation by mentor TAs or faculty supervisors. In History, the Director of Graduate Teaching assesses the TAs’ end-of-quarter evaluations. In English, the mentor visits the first-year TA’s classroom to offer feedback and writes an informal assessment of the classroom observation for the student’s file. In Music, faculty write performance reviews of their TAs at the end of each course and discuss their progress regularly.

Social Sciences

Anthropology encourages its TAs to implement a midterm feedback mechanism. This system combines mid-quarter small group evaluations, classroom observations, or student questionnaires with faculty feedback and end-quarter student evaluations. The Introductory Economics Center requires a formal midterm evaluation and the videotaping of sessions for all first-time TAs. In addition, Economics uses end-of-quarter evaluations to identify TAs who are having problems and help them improve their teaching, as well as to select outstanding TAs for quarterly and annual teaching awards.

Sciences and Engineering

Mid-quarter feedback on teaching also takes various successful forms among different science and engineering departments. TAs in Physics and Mathematics routinely have a teaching session videotaped and receive feedback from a combination of CTL consultants and department mentors or advisors. Electrical Engineering, Mechanical Engineering, Physics, and Statistics use online, mid-quarter student evaluations. The system used by Mechanical Engineering, developed by the mentor TA, allows TAs to create their own customized evaluations. This system now resides at CTL and can be used by TAs in other departments (http://cgi.stanford.edu/~dept-ctl/eval). The BioCore sequence, as well as the Human Biology and Earth Systems programs, routinely request CTL small group evaluations for all teaching and course assistants. The vast majority of science and engineering departments include TAs in some form of end-of-quarter evaluation, and many, such as Computer Science and Statistics, ask faculty to provide feedback about the TAs’ performance as well.

### CTL SUPPLEMENTS AND EXPANDS ON DEPARTMENTAL TA TRAINING BY OFFERING ALL TAS:

- Quarterly TA Orientations
- Quarterly practice teaching sessions
- Quarterly workshops on fundamental and advanced teaching techniques and professional development
- Midterm inclass or online small group evaluation
- Video recording and consultation
- Oral communication coaching for presentations
- Graduate courses on teaching and oral communication
- CTL teaching handbook Teaching at Stanford (title in italics)
- CTL quarterly newsletter Speaking of Teaching (title in italics)
- CTL website with handouts and online video recordings (http://ctl.stanford.edu)
TA HANDBOOKS

customized by department (online or in print)

Humanities
Art History, English, History, Music, and Philosophy have online TA handbooks. Religious Studies developed a wiki website with resources for its TAs. The Program in Writing and Rhetoric has an online Guide for Instructors, and many of the language programs offered by the Language Center maintain online teaching resources for their first- and second-year language instructors.

Social Sciences
Economics has a departmental TA handbook that has been updated annually for more than twenty years. The biggest course in Economics, Elementary Economics/Econ 1, has a separate handbook tailored to the needs of its TAs.

Linguistics has compiled a comprehensive set of pedagogical and logistical resources, also used by TAs in the Symbolic Systems program, and has made them available online with the help of a grant from CTL.

Sciences and Engineering
TA handbooks are increasingly common among science and engineering departments, and many have made these handbooks available online. For more information, see the gray box below.

If you are thinking of creating a handbook for your own department, you may wish to see what others have done:

Computer Science: http://www.stanford.edu/group/sutacs
Human Biology: http://www.stanford.edu/dept/humbio/taguide/2.html
Management Science and Engineering: http://www.stanford.edu/group/msande_tas
Mechanical Engineering: http://me.stanford.edu/for_currentssf/students/info_for_ta.html
Political Science: http://www.stanford.edu/group/polisci/psgsa/tamanual.shtml
Program in Writing and Rhetoric: http://pwr.stanford.edu/instructors/guide
Psychology: http://www-psych.stanford.edu/~ta/index.html
**Humanities**

Religious Studies recently compiled a manual for the revolving role of the mentor TA as part of redesigning its TA training course. In Art History, there is a binder of teaching materials kept in the TA lounge. In addition to creating a TA handbook, History has an extensive archive for its methods course. The Program in Writing and Rhetoric keeps all instructor syllabi, handouts, evaluations, and self-reflective summaries in the PWR office. Music provides beginning TAs with course materials collected over the years on discipline-specific teaching topics.

**Social Sciences**

Communication maintains an archive of resources for TAs. The archive is organized and kept by an experienced TA who disseminates the materials to the other TAs. Linguistics and Sociology both have online archives with examples of syllabi, handouts, evaluation forms, and observations of past TAs from many courses.

**Sciences and Engineering**

The Human Biology and Earth Systems programs each have archives that have been in place for years. These resources provide invaluable guidance and insight to new TAs, CAs, and course coordinators. Other departments, such as Statistics and Civil and Environmental Engineering, often make course handouts and specific course resources available to TAs on TA websites (see some examples and links under “TA Handbooks”).

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**TA TRAINING GRANTS**

In late spring or early summer, CTL announces TA training grants to departments that want to improve their TA training. Examples of successful TA training grants include:

- **Asian Languages**: A one-day workshop with faculty and graduate students on teaching Asian literature
- **Art History**: Development of a TA handbook and the organization of quarterly events on teaching
- **Bio41 Course**: Quarterly TA teaching lunches
- **Chemical Engineering**: A two-day TA-training program in the Fall
- **Music**: A quarterly forum on teaching and professional development
- **Sociology**: Creation of a media library for teaching materials
Humanities

Humanities departments typically provide guidance in professional development through informal workshops. For example, English and History offer workshops, led by both faculty and advanced graduate students, that cover topics such as conference presentations, publishing, grant proposals, and academic job search strategies. In Art History and Music, these workshops also serve as forums in which students can practice delivering conference papers and job talks. Philosophy and Slavic Languages assist students with job searches on an individual basis. Several departments, including Asian Languages and History, encourage students to strengthen their job applications by teaching their own courses; others offer their students professional development opportunities specific to the discipline, such as the Language Center’s training in oral proficiency interviewing.

Social Sciences

Professional development in the social sciences typically falls into three broad categories: teaching, research, and job market preparation. Communication offers its TAs the chance to enhance their teaching experience by delivering lectures and participating in the preparation of course materials. Economics graduate students have the opportunity to give seminars, thereby gaining additional experience in public speaking. Sociology and Political Science also devote much of their professional development to honing research skills. Political Science offers training in the use of research tools and methods, while Sociology requires its students to spend a minimum of three quarters as a research assistant. Many departments, such as Anthropology and Linguistics, discuss various aspects of the job market in lunchtime workshops. Topics covered include job interviews, job talks, and the preparation of CVs. Psychology combines these topics into a course that gives students the chance to prepare sample job search documents such as a teaching portfolio.

Sciences and Engineering

Opportunities for professional development in science and engineering departments range from required coursework to participation in professional meetings and conferences outside the department. Biology and Geological and Environmental Sciences curricula include professionalization seminars that introduce students to research topics, employment options, and various experts in the field. In addition, many departments require students to deliver oral presentations. Physics encourages graduate students to deliver presentations at professional conferences by paying travel and registration fees for three conferences during their graduate career. Computer Science offers a Future Faculty Seminar open to all Engineering students. In this course, students discuss issues ranging from intellectual property to the tenure process. Mechanical Engineering’s Winter course “Women in Engineering,” is open to anyone—not just women—interested in learning more about future careers in engineering.
CUSTOMIZED PRESENTATIONS
by CTL staff

**Humanities**

Art History, Classics, Drama, English, French, History, Music, Philosophy, and Religious Studies have invited CTL to deliver customized workshops on such topics as “Leading Discussions,” “Course Design,” “Using PowerPoint in the Classroom,” “iTunes and CourseWork,” and “Teaching Portfolios.” The Language Center involves CTL in its Fall orientation.

**Social Sciences**

Almost all social science departments invite CTL to lead customized workshops. These workshops may form part of a more comprehensive program designed by the department (for example, during its Spring Quarter TA training workshop series, Sociology invites CTL to talk about how to lead discussions), or may be stand-alone workshops customized for the department and discipline. These workshops cover a wide range of topics, such as teaching portfolios, technology and teaching, student feedback, and active learning.

**Sciences and Engineering**

Quite a few science and engineering departments and programs include customized CTL presentations as part of discipline-based TA training efforts. The most effective of these sessions are designed and co-facilitated in active partnership between CTL and the department. Biology launches its BioCore TA training each quarter with a “Survival Seminar” whose focus is on leading effective sections and often follows with a CTL practice teaching session. Physics, Civil and Environmental Engineering, and Computer Science pedagogy courses include CTL-led sessions focused on science learning styles, barriers to science learning, and strategies for pitching sections. Both Geological and Environmental Sciences and Human Biology have relied upon CTL for sessions ranging from active learning to testing and grading. In the case of Human Biology, the CTL partnership continues throughout the quarter as CAs and TAs design homework and exams.

CTL’s Associate Directors offer customized workshops and presentations on a variety of topics, including:

- “Active Learning in the Classroom”
- “Common Classroom Problems”
- “Course Design”
- “Designing a Teaching Portfolio”
- “Effective PowerPoint”
- “Getting Feedback on Your Teaching”
- “Helping Students Build Critical Skills”
- “iTunes and CourseWork”
- “Launching a Faculty Career”
- “Making Lectures Work”
- “Leading Great Discussions”
- “Teaching Problem-Solving”
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Please visit the CTL website (http://ctl.stanford.edu) for the online version of our teaching handbook, Teaching at Stanford, which includes a bibliography of useful books on teaching. The CTL site also contains many links to other online teaching resources and a catalogue of a variety of CTL services and resources for faculty, TAs, and departments.