

Best  
Practices  
for Teaching  
First-Year  
Undergraduates



strategies from  
experienced faculty

Carnegie Mellon

“The book  
was useful in  
helping me  
realize

that teaching first-year  
students is different from all  
other levels.”

—Assistant professor,  
Chemical Engineering

“The  
information  
is basic  
but not  
at all  
obvious

to people who might not  
realize (as I didn't) that  
teaching is *not* really an  
extension of a career in  
which you have attained a  
high level of expertise. It is a  
whole new career, and  
having a firm grasp on the  
subject matter is probably  
less than half the battle.”

—Associate professor,  
Drama

## Table of Contents

Why Do First-Year Undergraduates Require Special Attention? .....	2
Best Practices from Experienced Faculty .....	3
Adjusting Students' Expectations .....	3
Calibrating Your Expectations .....	4
Being Approachable .....	5
Getting Students to Office Hours .....	6
Enhancing Large Lectures .....	7
Improving Attendance .....	7
Engaging Students in Meaningful Learning .....	8
Helping Students Manage and Monitor Their Learning.....	10
Challenging Talented Students .....	11
Assuring Quality in Teaching .....	12
Maintaining Cohesiveness Across Multisection Courses .....	12
Addressing Academic Integrity Issues .....	13
Helping Students Who Are Experiencing Difficulty .....	14
Recognizing and Responding to Students Who May Need Assistance .....	15
Key Contacts for Assisting First-Year Undergraduates .....	16
References and Additional Readings .....	18
Acknowledgments .....	20
About the Eberly Center for Teaching Excellence .....	21

Carnegie Mellon recognizes that first-year undergraduate students' experience includes tremendous intellectual, social, emotional and cultural adaptation and development, and that faculty and TAs play an important role in these processes. Because each of these dimensions impacts the others, members of the university community need to work closely with each other and recognize that our collected expertise and wisdom is necessary to improve the acculturation of our first-year students.

In the first section of this booklet, we describe who first-year students are and why they have special needs. These students often show tremendous excitement about learning, but most faculty—unlike many of our colleagues in Student Affairs—have not been formally prepared to deal with the complexities of working with 18-year-olds who have many challenges to face in becoming mature, accomplished college students. Also, generalizing from their own past experience as students may be misleading for faculty members, who often were not typical students themselves.

In the middle section, we have compiled many faculty strategies for teaching that have been successful with first-year undergraduates at Carnegie Mellon. These strategies are also supported by research on learning and motivation. Whether or not you are new to teaching first-year students, we believe that you will find this compilation useful as you prepare your next course. Some of the best practices from experienced Carnegie Mellon faculty may fit well with your current course plans, while others may provide interesting launching points for planning or updating your courses.

In the last section, we list indicators to help you identify students who may be having difficulties and where you and they can turn for help. However, you will also find ideas throughout this booklet to strengthen the working relationship among faculty, TAs and students and to help students begin to develop the skills for academic success.

When faculty members and TAs discuss teaching first-year undergraduates, they often discover common goals and concerns across disciplines. Many report the realization that they are “teaching students, not statistics, biology or architecture.” This shift from content-centered to student-centered thinking can have a broad impact on teaching strategies and interactions with individual students.

We are grateful to the many Carnegie Mellon faculty members who have taken part in the cross-disciplinary discussions regarding first-year students and those faculty who have shared their successful strategies with us over the years. Their ideas and suggestions form the core of this set of best practices. Please contact us or the many experienced faculty who have contributed to this booklet if you would like to explore any of these strategies further.



Susan Ambrose  
Director, Eberly Center for Teaching Excellence

Whether or  
not you are  
new to  
teaching  
first-year  
students,

we believe that you will find  
this compilation useful as you  
prepare your next course.  
Some of the best practices  
from experienced Carnegie  
Mellon faculty may fit well  
with your current course plans,  
while others may provide  
interesting launching points  
for planning or updating  
your courses.



# Why Do First-Year Undergraduates Require Special Attention?



Faculty and TAs experienced in teaching first-year undergraduates agree that a number of things are going on in these students' lives during their first year. First-year students are not only developing academically and intellectually, they are also establishing and maintaining personal relationships, developing an identity, deciding about career and lifestyle, maintaining personal health and wellness, and developing an integrated philosophy of life. What this means, in concrete terms, is that many of the students are doing things that may seem minor many years later, but can be quite daunting when they are new. For example, many students are:

- sharing a room for the first time
- finding their way around a new place
- learning a new set of rules and procedures
- adapting to living away from home
- feeling homesick
- learning to manage their own time
- interacting with people with diverse backgrounds and values
- deciding whether to drink at their first college party
- adapting to different classroom norms
- learning how to learn
- making new friends
- altering or developing study habits
- exploring their sexuality
- thinking about their future
- feeling like a small fish in a big pond
- redefining their view of learning

What these students bring with them to college is a whole set of assumptions and strategies about life and learning based on their prior experience. Unfortunately, prior experience rarely prepares them for academic

and social life at Carnegie Mellon. For example, in high school:

- students' days were rigidly controlled,
- they often had a personal relationship with a teacher that helped to motivate them,
- assigned reading was discussed thoroughly in class,
- students were tested frequently on short spans of material,
- their view of learning was often memorizing a collection of facts,
- their view of teaching was transmission of knowledge from teacher to student, and
- many had strong support systems of family and friends to turn to for advice, help or comfort.

Some of our students handle this transition with ease. But many others face adjustment difficulties, especially during the first few weeks of the first semester (and even longer, for some) not only because of the new challenges, but because their old strategies don't work and new support systems are unfamiliar. (These challenges can be even more difficult for international students, who constitute more than 10% of the undergraduate student population.) Sadly, too many of these students are reluctant to ask for help, or simply do not know where to seek it. Students in large lecture courses are particularly at risk because they often feel anonymous in a learning environment that they are unaccustomed to.

The remainder of this booklet provides proven faculty strategies that are supported by research as well as key contacts so that we can facilitate a smoother transition for these students and enhance their learning.



## Adjusting Students' Expectations

Even though our first-year undergraduates have been very successful in high school, many faculty and TAs report that students in introductory courses often have little prior knowledge about the topic or field, and what they do know is poorly organized, incomplete or simply inaccurate. Many students report that they have previously succeeded academically without exerting themselves very much, and are surprised to find how rigorous and demanding Carnegie Mellon is. Even when facing their first low grades, some students remain confident and are slow to adjust their study strategies. Some faculty use the approaches below to help students understand the expectations early enough to adapt quickly and develop the new study skills and time management habits they will need to succeed at Carnegie Mellon.

Be explicit about your expectations in order to counteract naïve or inappropriate presumptions students may have. For example, explain to first-year students how many hours of work they should plan for a nine-unit course. Especially in large classes, be very clear about course policies (e.g., when assignments are due, to what extent collaboration is encouraged, how missed exams will be handled) both in your syllabus and in class.

Be explicit about the type of learning expected in your course because some students' high school teachers may have defined learning as memorizing, not analysis, synthesis or evaluation. You might

explain to students that problems won't always map directly from the ones they've seen before because one of the goals of learning is to be able to use concepts and principles in new situations. When you design assignments that include complex problems or questions, you can tell students how it prepares them for similar challenges on exams and later in life. Similarly, if you ask students to work in groups, tell students why you value teamwork and how teamwork skills are valued in the professional world.

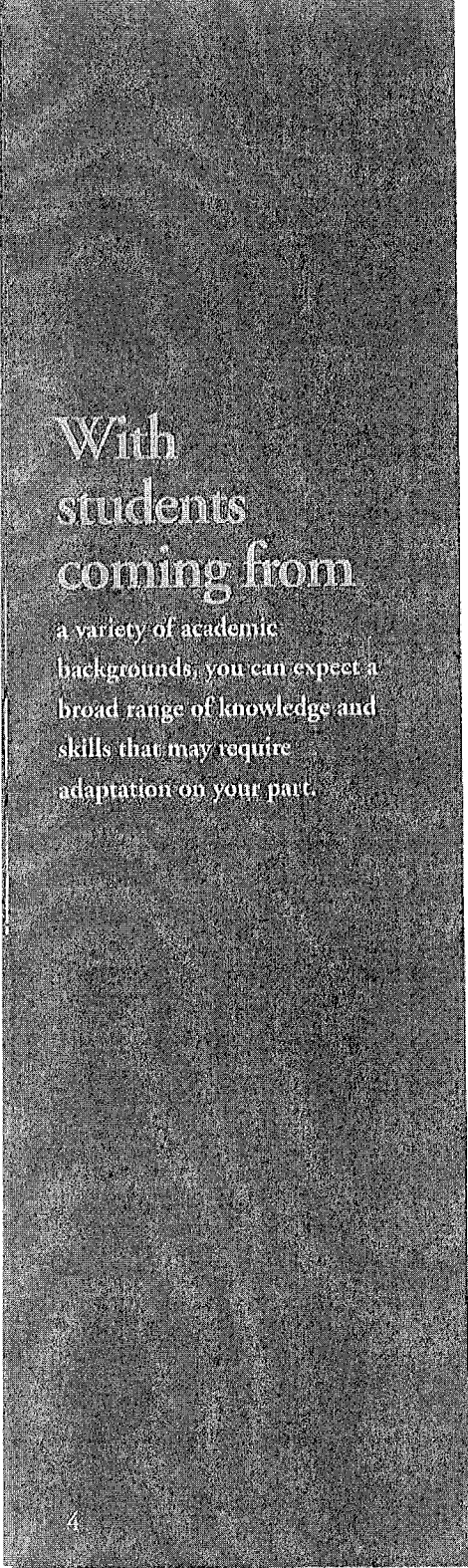
Give an early ungraded quiz or exam based on what students should know from prior courses. Feedback on their performance can help them quickly identify areas where they need to review old course material or seek tutoring.

Teach students how to prepare for college assignments and exams. Besides teaching content, we need to provide suggestions on how to master material and help our students to develop the general learning skills they need now and in the rest of their careers. For example, faculty members might make available prior exams so students can see what to expect and test themselves as they study. Or, faculty might explicitly discuss and model the various stages in the writing process. Many faculty put sample exams and papers on the web.

Encourage students to ask questions or seek assistance as a normal part of the learning process. Let them know that many students spend a great deal of time "spinning their wheels" needlessly and that challenging assignments may require both advance planning and willingness to ask questions.

## Best Practices from Experienced Faculty





## With students coming from

a variety of academic  
backgrounds, you can expect a  
broad range of knowledge and  
skills that may require  
adaptation on your part.

Faculty and TAs can point out the advantages of starting assignments early enough to be able to seek assistance with major obstacles students may encounter. Also, reminders about office hours and other resources can make it easier for reluctant students to seek help early.

Help students to acquire better self-monitoring skills to change study and time management behaviors that aren't working. For example, periodically ask students to track how much time they are spending on their assignments and advise students whose strategies may need some improvement. If taking notes is important in your lecture, you might want to demonstrate effective note-taking by providing copies of notes from the first two or three lectures taken by an "expert note taker" (e.g., one of your TAs). Students can then compare their notes to the "expert notes" and adjust their approach.

## Calibrating Your Expectations

Many Carnegie Mellon faculty claim that it takes more time to teach first-year undergraduate courses than any other type or level of course. With students coming from a variety of academic backgrounds, you can expect a broad range of knowledge and skills that may require adaptation on your part. Since the students are new to college workloads, they often need more explicit instruction than you are accustomed to giving in other courses. Experienced faculty stress the importance of patience and understanding of the unique difficulties these students may encounter. The practices here provide some ways of adapting to make your expectations explicit and guiding students' learning strategies in order to help them develop the habits of mature learners more quickly.

Check your assumptions about what these students know or can do. An ungraded assignment or diagnostic quiz can show you if a majority of students are weak in the same area so that you can adapt, for example, by holding a review session or asking TAs to hold one.

Remember that most of these students are 18-year-olds. They are excited about and overwhelmed by their new environment. They are bright and ambitious, but may lack the self-discipline of more experienced students. Some are naive and some are immature, but almost all are very enthusiastic about learning.

If you are teaching a small class with a lot of contact hours, such as a studio course, students may come to lean on you very heavily. Be prepared to set clear boundaries with students who may want you to give of yourself as generously as a parent.

If you will be teaching a first-year undergraduate course for the first time, it may be helpful to observe someone else doing it the previous semester so that, for example, you can begin to calibrate to the appropriate pace and level of these students and the types of issues that arise in these classes, particularly the large lectures. Some departments have used team-teaching or “buddy systems” effectively to assist faculty in preparing to teach large introductory courses. If it is not possible to observe a colleague, borrowing their notes and assignments can also be useful.

## Being Approachable

Particularly in the fall semester, first-year undergraduates are adjusting to many changes in their environment—making new friends, handling increased responsibility and exploring new personal freedom. Many are less certain of themselves than they were in high school. The formality of large classes may exacerbate the sense of isolation and anonymity that troubles a number of students. Faculty and TAs can demonstrate their interest in students through small but important symbolic gestures.

Learning the names of first-year undergraduates is important. Since these students are unaccustomed to and often

turned off by the depersonalized nature of large courses, TAs should be strongly encouraged to know all of the students in their sections within two weeks. Faculty members may want to enlist the aid of photographs, mnemonics or seating charts to improve their name-learning in larger classes. (Further tips are available on the Eberly Center website.)

Since first-year students often perceive faculty as “too important to bother,” it can help to come to class early and talk to students. By targeting three or four students in each class session to “meet” and talk with informally before class begins, you can establish good working relationships with many individual students as well as demonstrate your accessibility. A faculty member who teaches large lectures recommends announcing to students that a group of three or more of them can invite you to lunch or coffee (you’ll pay your own way) so that you can get a chance to know students individually.

Take time to mingle with students any time you assign group work in class. This informal interaction provides an environment in which students can immediately ask questions, and fosters a connection for future exchange after class or in your office.

Ask students about themselves. For example, many faculty ask students for information about related courses they have taken or their interests in the course. At the same time, you might also ask students where they are from, their majors, their hobbies or other personal information to help you relate examples to their experiences and interests and to facilitate small talk both in and out of class.

## Particularly in the fall semester

first-year undergraduates are adjusting to many changes in their environment. Faculty and TAs can demonstrate their interest in students through small but important symbolic gestures.



*"I strongly encourage individual conferences with each student.*

*In the freshman seminars, this is relatively easy to do very early in the semester. The behind-the-scenes work in these conferences can also accelerate the comfort level in the classroom. Students feel like you're on their side early on, before much evaluation takes place."*

*—Professor  
English*

## Getting Students to Office Hours

Even after announcing your office hours at the beginning of the course, you may likely find that only the most assertive or problematic students take you up on them. Faculty have found the following techniques useful in getting students to take advantage of the time you offer to help them outside of class.

**Tell students why office hours are important.** Explain in the syllabus, in class, in lab, recitation and even via e-mail that you really want to meet with the students individually and what the benefits will be for them.

**Consider required appointments as an "icebreaker."** This helps students understand that seeing their professors isn't like going to the dentist, explains one professor.

**Come to class, lab or recitation early and stay late to chat with students informally.** Being approachable and showing students you are interested in them as individuals is likely to increase office hours attendance.

**Return students' work with a "Please see me during office hours" note.** This invitation on a homework, paper or exam will motivate poorly performing students to show up. Research shows that such notes can yield a 75% response rate when attached to a specific problem.

**Choose your office hours strategically.** We know that students won't attend office hours on the day after homework is assigned. Students prioritize their assignments and will only work on yours after their more pressing deadlines are met. On the other hand, some faculty do not want to encourage the habit of starting homework the day before it's due, and will therefore not schedule office hours on that day. Instead, holding office hours two or three days before the assignment is due appears to be the preferred choice.

**Consider holding individual conferences by appointment or having an open-door policy in addition to regularly scheduled office hours.** Such a policy can become a burden on your time—especially if some students take advantage of it—but some students' classes or extracurricular activities may prevent even the well-intentioned from attending regularly scheduled office hours.

**Adjust to the rhythm of the semester.** Students are more likely to come in before a midterm (to review concepts), after a midterm (to debate grades), before a major assignment or project is due and before the final. You may want to schedule extra office hours to accommodate all the students at those times.

**Always strive to conduct exemplary office hours.** Word of mouth is very powerful among college students. If they find you unprepared, unapproachable or disrespectful at office hours, they won't come again—and they will tell their friends.

## Enhancing Large Lectures

**L**earning in large lectures requires skills that many students have not yet developed, such as active listening and note-taking. Because the lecture setting can often be passive, it is especially important for students to have good cues so they can better organize, retain and use what they learn. Many faculty use strategies like those described here to emphasize the structure of ideas in each lecture. This emphasis is particularly helpful to the many students who have difficulty seeing the organization on their own.

**Highlight major points at the beginning of the lecture.** A skeletal outline of the day's agenda reveals the structure of the topic and prepares students to listen effectively. Ideally, this outline will have three or four segments that reflect the three or four major concepts you will cover.

**Explicitly distinguish between generalization and examples, conclusions and evidence or trends and isolated events** because students often don't easily differentiate type of information when the pace and density of information are greater than they have been used to.

**Summarize periodically during each class and at the end of a lecture.** These summaries reinforce main points and, in addition, enable students to monitor their comprehension and create natural points for asking questions.

**Consider incorporating some interaction and discussion.** Even in large classes, you can paraphrase the comments of each student so that everyone in the room can hear and benefit from the interaction.

## Improving Attendance

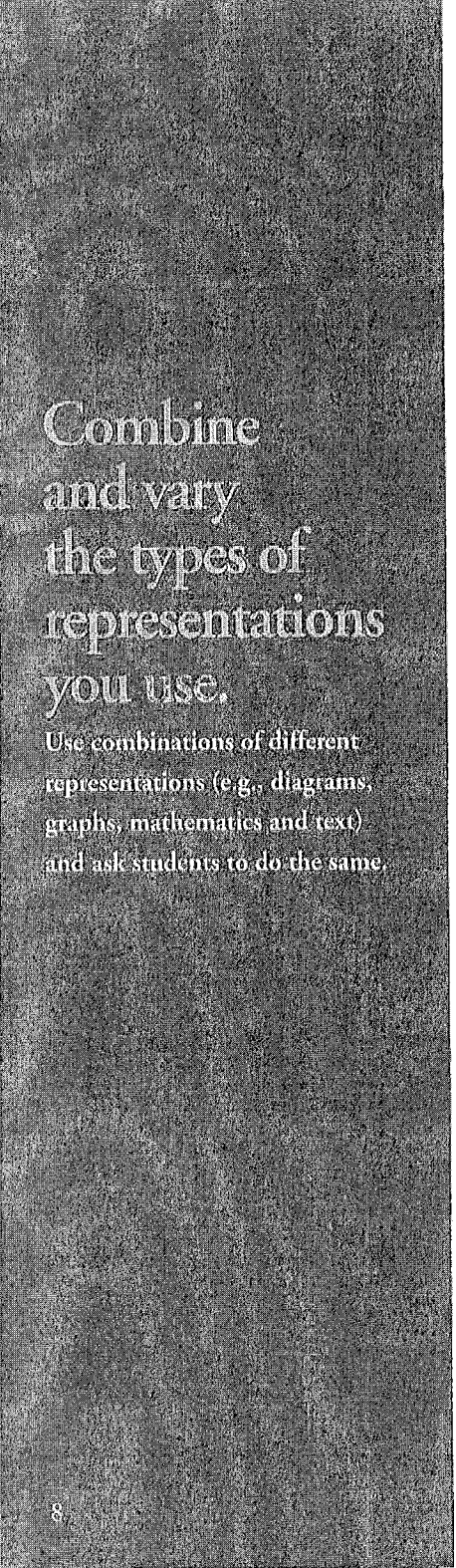
**A**s first-year students learn to handle the new-found freedom of college life, many experiment with skipping classes. Some may inaccurately view the lecture as a repetition of the text and perceive attendance as optional. Others may sleep through class or work on other assignments during that time because poor study and time management habits cause them to fall behind. Faculty members who report concerns about drops in attendance, particularly in the large lectures, offer the following strategies to keep students in class regularly.

**Be explicit about the importance of attending class.** If you introduce information in lecture that is not in the book, be sure to tell students. If you provide alternative examples to the ones in the text or other ways of approaching the material, tell them. If your exam draws on both the book and lectures, tell them. By presenting novel information that is not in the book and highlighting when you do, students can more directly see the role of attending class in their learning.

**Structure your course in a way that makes students accountable for attendance.** Some faculty give regular assignments to turn in and/or short quizzes to ensure attendance (some as short as one multiple choice question).

**For students  
who are still  
learning how  
to learn  
in college,**

**frequent opportunities  
to test their understanding  
can help them recognize  
and correct misconceptions  
and other potential  
problems  
more quickly.**



## Combine and vary the types of representations you use.

Use combinations of different representations (e.g., diagrams, graphs, mathematics and text) and ask students to do the same.

Start class on time so that students understand the importance of promptness. End class on time as well to show that you understand and respect their time constraints. It is easy to forget how much time students need to get to class in another part of campus.

## Engaging Students in Meaningful Learning

While all students benefit from increased active engagement in class, first-year undergraduates particularly have a great deal to gain. For students who are still learning how to learn in college, frequent opportunities to test their understanding can help them recognize and correct misconceptions and other potential problems more quickly. Since a number of important first-year courses include large lectures, students in these courses spend much of their time learning in what can easily become passive settings. Regardless of class size, faculty and TAs can take advantage of a variety of strategies to enhance students' active engagement and promote more meaningful learning.

### *In lectures*

Ask students lots of questions during class. In addition to increasing active engagement in learning, the answers provide you with vital information about the range of student knowledge and ongoing comprehension.

If students have difficulty with note-taking, do an example where you ask students *not* to take notes while you work through the example step-by-step on the board. Instead, give them five minutes to take down notes after the example has been discussed. Students are often so busy taking notes that they don't process the information and don't realize what they don't understand until they sit down to do a homework assignment—when it's too late to ask you questions.

### *In discussions and recitations*

Require students to write brief discussion questions or gists as preparation for classes where reading and participation are important. Draw on their written work to show the value of their preparation in determining the direction of the class, or select examples that are based on common areas of confusion.

Encourage students to collaborate on assignments, then give regular individual quizzes to assure individual accountability. Quizzes can help students who are not experienced with group work and who may have the illusion that they have mastered more of the material than they actually have. Be sure to clearly note the distinction between productive collaboration and cheating for the types of assignments where group work is helpful. The Office of Student Affairs and the Eberly Center can provide written materials to assist you in discussing academic integrity issues with your students.

Consider making some exercises into contests or games to engage students' competitive spirit. Group competitions can



be an alternative to individual ones to get the benefits of both within-group collaboration and between-group competition. To ensure a collaborative environment is fostered, don't make individuals compete for grades on a standard curve.

Assign more group work in class early on so the students get to know each other better. The quicker they're comfortable with each other, the better the class will run, explains one professor. "When they feed off each other as opposed to trying to one-up each other, it creates a great energy in the classroom."

### *In any course*

Encourage students to make material meaningful by relating it to prior knowledge and experience. For example, ask students to paraphrase key concepts in their own words or generate their own examples.

Ask more questions that require students to probe deeply into the significance or implications of the course material. For example, comparisons and analogies can help students to see connections among related problems, concepts, situation or arguments. Or asking students to complete a statement like "This information might explain why ..." can encourage students to think more deeply about the material.

Carefully select a mixture of realistic and familiar examples to demonstrate the relevance of course material. Students are often more engaged and motivated to learn when they see how course material relates to their personal and/or future professional lives.

Combine and vary the types of representations you use, and ask students to do the same. Utilizing multiple types of representations (e.g., diagrams, graphs, mathematics and text) can provide complementary information, reinforce understanding of key concepts, enable students to expand their repertoire of reasoning tools and reach out to students who have a variety of learning styles.

Have students solve problems or analyze examples in groups during class so that they can discuss the material and ask questions. This approach can be effective with pairs in large lectures or with groups of three or four in smaller classes. In larger classes you can call on a small sample of groups to report their responses or questions. In smaller classes, you or a TA can observe students' work-in-progress and offer appropriate feedback or questions to guide their work, then elaborate on common concerns to the whole class. In either case, in-class practice gives students a chance to test their understanding and ask questions before they begin to attempt the homework on their own.

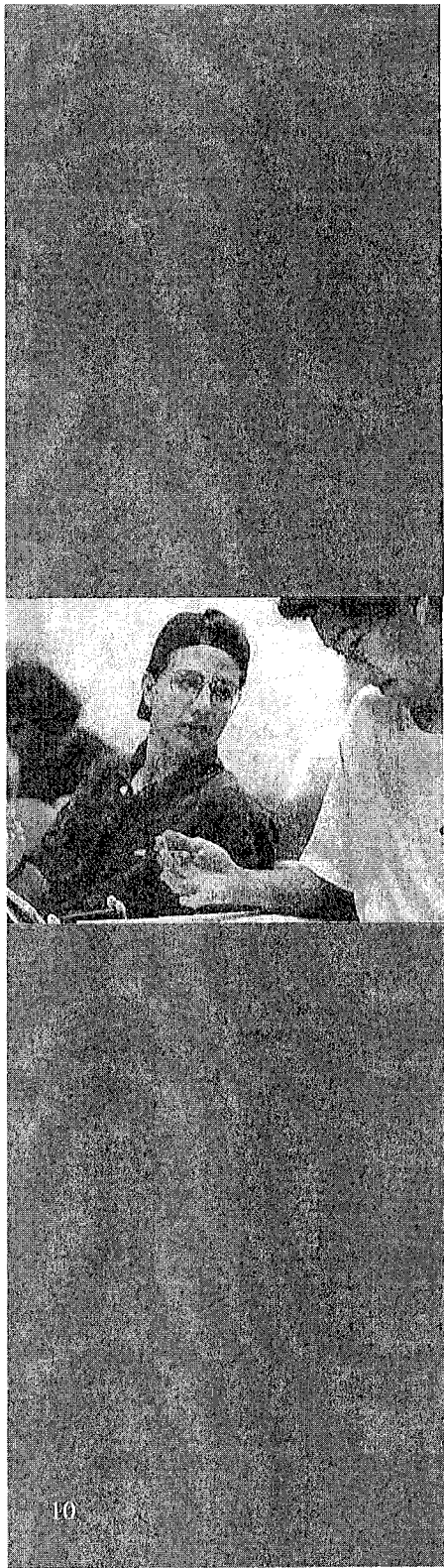
Explicitly tell students when you are modeling a valuable learning strategy like those mentioned above, so they can learn to use these strategies on their own.

A physics professor shares two methods he and his colleagues use to increase active participation in large lectures:

As students come into a large lecture, they pick up half-sized sheets of yellow paper, with a space for name and section. Several

## In-class practice gives students a chance

to test their understanding and ask questions before they begin to attempt the homework on their own.



times during lecture a question or short problem is posed for the students to work out on the sheet, to keep them engaged. Students drop them off on their way out. They aren't graded, but one looks through them to see whether there is a common difficulty that should be commented on at the next meeting. The sheets are also used to take attendance and make attendance count.

**Have the students work problems on whiteboards in class.** In the past it was common in science and math recitation sections for a graduate student TA to stand at the board and work problems. In some physics classes the students instead now work in groups of two or three on problems on whiteboards—typically unassigned homework problems. The TA and a TAA (an undergraduate who did well in the course in a previous semester) wander around looking at the work, asking and answering questions. The use of blunt markers on whiteboards ensures that everyone can see the work clearly and makes the problem-solving much more public. The effect of this innovation is to nearly double the amount of serious homework practice the students get, and to have students practice in a monitored and supportive environment.

The professor warns that “it can be initially frustrating seeing the students fumble around in such a recitation class after your ‘brilliant’ lecture of yesterday, but the issue is that usually these confusions are hidden, private, in the student’s dorm room. Here you’re seeing the process as students struggle to apply the new knowledge.”

## Helping Students Manage and Monitor Their Learning

**A**mong the noticeable differences between high school and college is that students need to take much more responsibility for managing their time and monitoring their own learning. With a challenging workload and numerous diversions in their new environment, first-year undergraduates often need a lot of structure and ongoing feedback to help them stay focused, practice new skills appropriately and assess their progress continually. Since frequent assignments can be time-consuming for faculty to prepare, for students to complete and for TAs to grade, experienced faculty offer strategies that can be both efficient and effective for all members of our community.

**Establish a routine for due dates, distribution of solution sets and reminders to help students better plan their time.** A weekly or biweekly routine makes it easier for inexperienced students to set aside regular blocks of time for completing homework, papers or projects. When such a routine isn't practical for a course, in-class reminders help students handle their workloads while they begin to develop better planning and time-management skills.

**Make assignments that require students to identify patterns or strategies within or across problems, papers or projects and discuss these common patterns in class.** All too often students are so concerned with just getting assignments completed that they don't look back on their work to consolidate what they learned from it.

Allow students to “redo” problems with documentation that indicates “what I did wrong last time” and “what I learned from reworking the problem,” or encourage students to visit the TA to have these types of conversations.

Advise students to rework problems in preparation for exams because many think that simply re-reading their solutions is sufficient. If you or your TAs conduct review sessions, incorporating practice on sample problems during the session can alert students who have overestimated what they know.

Meet individually with any student who is performing poorly in the course, along with his/her TA, and give the student an exam from a previous semester to complete as homework and discuss with the TA. Remind both the student and TA that the process will alert them to where the student is weak and that they should schedule extra sessions to work on those areas. This strategy can help the student follow through on a recommendation to seek help and also help the TA become more proactive in assisting students who are having trouble.

When you review and grade students’ work, analyze error patterns and discuss common errors and their possible origins. Discussion of common misconceptions and errors can help students to detect them on their own more quickly and avoid similar problems in future work.

Help students develop a greater awareness of their thinking strategies and ways to enhance them. These strategies are rarely explicitly taught but are an important step

toward developing more complex learning skills. For example, faculty and TAs can model how to verbalize steps in thinking through a problem or issue and then ask students to do the same in small groups or by writing explanations of their solutions. You can also encourage reflection about readings via short writing assignments, or teach diagramming and clustering to help students organize their thinking visually.

## Challenging Talented Students

Many students choose Carnegie Mellon because they are seeking intellectual and creative challenges to stretch themselves. Even when faculty carefully structure the learning experiences for first-year students, it may be difficult to pitch the class at a level appropriate for all students. For the students who may feel the need for greater intellectual stimulation than the majority, experienced faculty offer ideas that address the full range of talents and needs.

Challenge top students by helping them find opportunities to get involved in research. The Undergraduate Research Initiative provides information and resources for students, including many first-year students. (See p. 17 for details.)

Consider creating optional “challenge” problems or projects that allow motivated students to explore their interests and test their abilities. If you do not view a comprehensive final as essential for the type of course you teach, giving students the





## Teaching is often viewed as a one-way street:

the teacher teaches and the student learns. But faculty and TAs can often learn a great deal from their students, in particular, what teaching techniques are or are not working.

alternative of completing a modest project can provide a natural context in which they may explore their interests and discuss their work with faculty members.

If you use group activities in class, vary the way in which students form groups so that talented students are sometimes working with others at their own level and other times in mixed-ability groups. Talented students benefit from both challenging one another and also explaining concepts to peers.

### Assuring Quality in Teaching

Teaching is often viewed as a one-way street: the teacher teaches and the student learns. But faculty and TAs can often learn a great deal from their students; in particular, what teaching techniques are or are not working. Below are some ideas on encouraging feedback from your students.

Administer an early course evaluation three or four weeks into your course in which you ask students to identify things that help them to learn in the course as well as things that hinder their learning, and ask for suggestions about ways to improve the course. Make sure you report to students the results of the evaluation and how you will act on the recommendations or why it is not possible to make particular changes. The Eberly Center can provide sample evaluation forms.

Ask students to write down unanswered questions at the end of class. You can respond to these questions via e-mail to the class or during the next class.

Find 1-3 students in the course to act as ombudspersons or a quality circle who will give you regular feedback about how the course is going. The students should be selected by their classmates so everyone will rely on them as representatives. In a very brief weekly meeting, these students can carry back to you concerns or problems about the course reported to them by other students.

Be sure TAs receive student feedback on their work with students in recitation, labs, review sessions and office hours. The Eberly Center and many departments can provide you with early course evaluations designed specifically for TAs.

Strongly encourage TAs to seek feedback on their teaching from experienced peers through the Center for Teaching's Classroom Observation and Feedback Program. The feedback from these individual observations can be very useful in clarifying how to respond to feedback from early course evaluations.

### Maintaining Cohesiveness Across Multisection Courses

Teaching first-year undergraduates in first-year courses offers many challenges. Many first-year courses are large, multi-section endeavors where consistency across instructors and TAs can be difficult to manage. Experienced faculty offer the following tips on maintaining high quality in courses for first-year undergraduates.

Monitor the quality of the sections in a large course. Some faculty find it useful to visit their TAs' classes themselves for short, regular visits to see how the overall course is going and also to provide helpful feedback to the TAs. If you have a head TA for your course, classroom visits and feedback to less experienced TAs might be part of his/her responsibilities.

Have weekly meetings with TAs to inform them about what you are doing in lecture and to learn about how students are doing in recitations and on assignments. In addition, you can use this opportunity to advance the development of the TA as a teacher. For example, you can discuss possible responses to early course evaluations or use group discussion to help a TA decide how to handle a challenging situation in his/her section.

Have your TAs take turns sitting in on lectures. For the relatively small amount of time invested, they can more easily build on the lecture in recitation, better address any areas of student confusion they see, and give you and the other TAs feedback on any areas of the lecture that students found difficult. Also, they can be available to respond to students' questions immediately after lecture.

Provide solution keys to all graders so that grading can be kept consistent across sections.

## Addressing Academic Integrity Issues

Students beginning college are facing increased workloads, but dwindling amounts of time to do it in. This stress, combined with the pressure to do well in school, can make plagiarizing or cheating irresistible. On the other hand, some students may not realize what they're doing is wrong. No matter the cause, the end result is the same: a compromise of the student's academic integrity.

Faculty agree that an early and proactive approach to academic integrity issues is best. A few general tips follow; for more in-depth discussion and suggestions, see *Promoting Academic Integrity: A Discussion Guide for the Carnegie Mellon Community* (available at the Eberly Center and Student Affairs).

Clearly explain on the first day of class and/or on the syllabus collaboration boundaries, citation rules and how you define cheating. Defining any "gray areas" early on can deter problems before they become habits.

Beware the internet. The internet provides students useful information, but it can also provide a shortcut to producing what should be original work. Make students aware that you know that such temptations exist.

Remind students that you are approachable. If they know there are alternatives to cheating or plagiarizing (a project extension for example) they'll be less likely to take a "shortcut."

Students  
beginning  
college are  
facing  
increased  
workloads

but dwindling amounts  
of time to do it in.  
This stress, combined with  
the pressure to do well in  
school, can make plagiarizing  
or cheating irresistible.

It is impossible to deal with first-year students on an intellectual basis only;

they are also social-emotional beings. Often they simply need reassurance or someone to just listen.

## Helping Students Who Are Experiencing Difficulty

Since Carnegie Mellon's first-year students have been academically successful in high school, they often assume that they will continue to be successful in college. Since academic success is often a major part of students' developing identities, early encounters with "failure" (sometimes defined as a B or C grade) can throw them into emotional turmoil. Early in a course, inexperienced students may honestly believe that they can handle any difficulties on their own, but may find that the difficulties grow progressively worse, especially when the material later in the course depends heavily on the earlier concepts. Some students may be too embarrassed or too proud to seek help. Intervening early in the course to offer support and assistance can be a key strategy for promoting students' success.

Remind students that struggling does not indicate lack of talent or intelligence, but often reflects a need to acclimate to the university environment (e.g., amount and level of work, type of intellectual demands, different study strategies). Otherwise, too often students internalize thoughts and feelings such as "I'm just not smart enough or creative enough to make it at Carnegie Mellon."

Contact every student who does poorly on the first exam or major assignment for a five minute appointment to determine what kind of help the student may need (such as assistance from a TA, Student Affairs, a learning specialist, the Intercultural

Communication Center or others listed on pages 16-17). When possible, engage your TAs' help in following up with the students.

**Remember that it is impossible to deal with first-year students on an intellectual basis only; they are also social-emotional beings.** Often they simply need reassurance or someone to just listen. Some will need a push in the right direction because they are not used to asking for help. Help may involve the TA, study groups, tutoring or other referrals. The Associate Dean in your college or the Dean and Associate Dean of Student Affairs can guide you when you are uncertain of either how hard to "push" or what type of assistance a particular student may need.

**As a regular part of your weekly TA meetings, discuss any students who are having problems, the types of problems they are experiencing and how you and the TAs should respond.** If you find many students across sections experiencing difficulty with the same concept, you could adjust the next class session to address the problem or work with TAs to develop an appropriate help session.

**Be proactive in reaching out to students because they often won't seek help on their own.** Some faculty members and TAs invite students (alone or in groups of 2-3) to their offices for just a 5-10 minute "introduction" conversation that can pave the way for talking about difficulties if they arise later. Others use e-mail or notes on returned assignments/exams to set up a time to talk with students who seem to have difficulties.



Run some extra, optional class sessions for a targeted group of students who are having trouble (e.g., the lower 20% of the class). Use this time to offer interactive help and “get inside their heads.”

After an exam, ask students who did well for a description of their study strategies and post it to the course b-board so that other students can learn from them. Or, do a simple written questionnaire about study strategies and report back to the class what the most successful students did.

Present information about course-specific peer tutoring if it is available for your course. (Schedules can be obtained through the Office of Academic Development.) You can assist the peer tutors by identifying a TA to act as liaison. The TA can provide tutors with a syllabus and access to assignments for your course and also inform you about student difficulties the tutors are seeing.

The signs of student difficulty are not always easy to detect. As a group, first-year undergraduates have a wide variety of problems adjusting to the responsibilities and opportunities Carnegie Mellon presents. Underlying difficulties, such as poor organizational skills, depression, substance abuse, stress-related illness, conflicts with roommates or family, or personal loss are not uncommon. While faculty and TAs do not need to be able to “diagnose” the underlying difficulties, it is useful to recognize some of the indicators that may suggest that a student could benefit from a conversation with you, his/her academic advisor, your Associate Dean, the Coordinator of Academic Development or a member of the Student Affairs staff. Some signs of potential difficulty to watch for are:

- Sleeping in class
- Disruptive behaviors
- Withdrawal or avoidance
- Inappropriate humor
- Cheating
- Frustration with workload and/or grades
- Absence (especially for an extended period)
- Marked drop in performance
- Confrontations with peers
- Isolation from peers
- Poor testing
- Wearing sunglasses in class

## Recognizing and Responding to Students Who May Need Assistance

# Key Contacts for Assisting First-Year Undergraduates



Academic Advisors, Assistant Deans and Associate Deans in your college are available to:

- \* help students to deal with course work and personal circumstances that may affect their academic success and
- \* help faculty to understand individual students who appear to be under unusual stress.

The Dean and Associate Dean of Student Affairs (x8-2075), along with the staff members in the Office of Student Life (x8-2142) and Counseling and Psychological Services (x8-2922), are available to:

- \* counsel students having trouble with academic or personal stress,
- \* help students to find peer tutoring and
- \* conduct academic success programs for groups of students on issues such as time management or study skills.

The Office of Academic Development ([acad-dev.mac.cc.cmu.edu/](http://acad-dev.mac.cc.cmu.edu/), x8-6878) can:

- \* conduct workshops and tutoring on learning strategies,
- \* organize Supplemental Instruction to help students in first-year undergraduate courses acquire and enhance the learning strategies relevant to particular disciplines and
- \* provide support and advocacy for students with learning disabilities.

The Carnegie Mellon Action Program ([www.cmu.edu/enrollment/admission/diversity/cmap.html](http://www.cmu.edu/enrollment/admission/diversity/cmap.html), x8-2150) focuses on:

- \* the retention of undergraduate African American, Hispanic and Native American students and
- \* academic, personal and career development services to monitor and enhance success for these students.

The Equal Opportunity Office

([hr.web.cmu.edu](http://hr.web.cmu.edu), x8-2012) provides university customers with processes and consultative services that help them to:

- \* safeguard fair treatment of employees and students;
- \* comply with government regulations covering employment activity and civil rights, including linked program implementation and monitoring and reporting responsibilities; and
- \* manage diversity in the campus community.

The Undergraduate Research Initiative ([www.cmu.edu/adm/uri/](http://www.cmu.edu/adm/uri/), x8-5702) is available to:

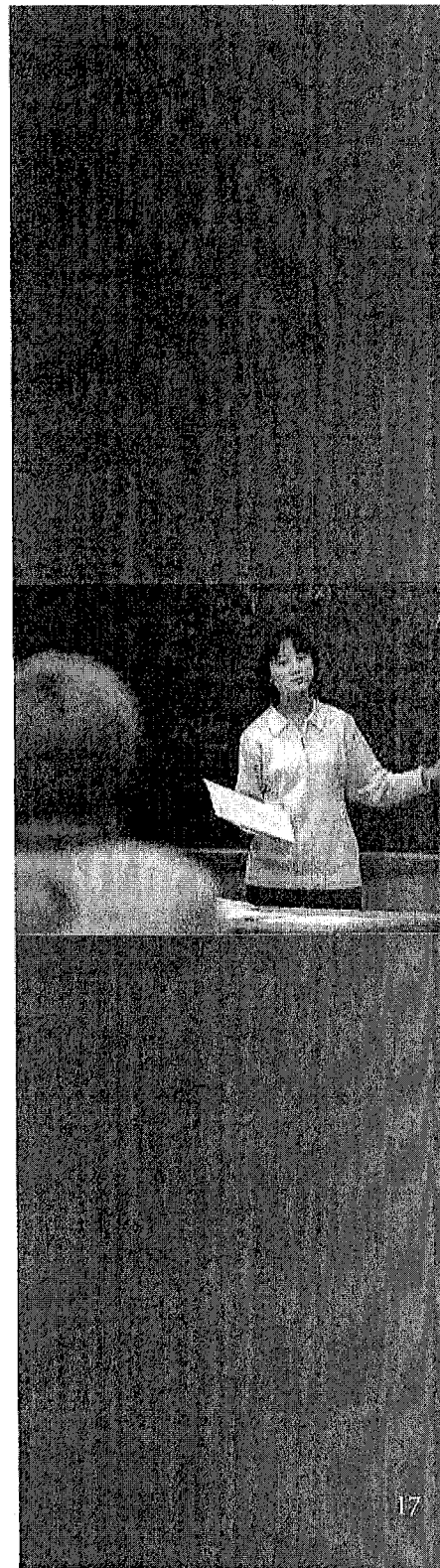
- \* help students locate appropriate opportunities in independent research and creative projects in all fields at Carnegie Mellon (their Research Directory is a key resource),
- \* provide funding for both student-initiated and faculty-sponsored research projects through the Small Undergraduate Research Grant (SURG) program as well as funding for students presenting their work at conferences and
- \* assist faculty who are looking for students interested in working on a project.

The Eberly Center for Teaching Excellence ([www.cmu.edu/teaching/eberlycenter/](http://www.cmu.edu/teaching/eberlycenter/), x8-2896) is available to:

- \* consult with faculty and graduate student instructors on planning and teaching courses that provide a variety of types of support to facilitate student learning,
- \* observe classroom teaching and provide feedback and recommendations to faculty and TAs,
- \* facilitate ongoing discussions for faculty and TAs on special issues for teaching first-year undergraduates,
- \* offer one-on-one help to faculty interested in incorporating writing into their courses in new ways and
- \* conduct seminars on teaching-learning topics such as providing effective feedback, creating assignments and exams, and strategies for increasing active learning.

The Intercultural Communication Center ([www.cmu.edu/adm/apaa/icc/](http://www.cmu.edu/adm/apaa/icc/), x8-4979) provides:

- \* individual appointments in their Writing Clinic for students who are non-native speakers of English and need to improve the writing skills required for their academic work,
- \* individual diagnostic language interviews, when requested by either the student or a faculty member, to determine what kind of language development work, if any, would be appropriate for a student,
- \* testing of international TAs who are non-native speakers of English to ensure compliance with Pennsylvania laws,
- \* training in language and classroom skills for international TAs who are non-native speakers of English so that they can teach effectively in the American classroom and
- \* assistance for international faculty members with language and cultural issues that may interfere with successful work with students.





# References and Additional Readings



Anderson, J.R. (1990). *Cognitive Psychology and Its Implications*. New York: W.H. Freeman and Company.

Angelo, T.A. (1991). *Classroom Research: Early Lessons from Success*. *New Directions for Teaching and Learning*, no. 46. San Francisco: Jossey-Bass.

Astin, A.W. (1993). *What Matters in College? Four Critical Years Revisited*. San Francisco: CA: Jossey-Bass.

Baxter Magolda, M.B. (2000). *Teaching to Promote Intellectual and Personal Maturity: Incorporating Students' Worldviews and Identities into the Learning Process*. *New Directions for Teaching and Learning*, no. 82. San Francisco: Jossey-Bass.

Bligh, D.A. (2000). *What's the Use of Lectures?* San Francisco: Jossey-Bass.

Bonwell, C.C. & Eison, J.A. (1991). *Active Learning: Creating Excitement in the Classroom*. ASHE-ERIC Higher Education Report No. 1. Washington, DC: The George Washington University.

Border, L.L.B. & Chism, N.V.N. (1992). *Teaching for Diversity*. *New Directions for Teaching and Learning*, no. 49. San Francisco: Jossey-Bass.

Brinko, K.T. "Visioning Your Course: Questions to Ask as You Design Your Course." *The Teaching Professor*, February 1991.

Brookfield, S.D. & Preskill, S. (1999). *Discussion as a Way of Teaching*. San Francisco: Jossey-Bass.

Brown, G., & Atkins, M. (1988). *Effective Teaching in Higher Education*. London, England: Routledge.

Christensen, C.R., Garvin, D.A. & Sweet, A., Editors (1991). *Education for Judgment: The Artistry of Discussion Leadership*. Boston, MA: Harvard Business School Press.

Davidson, C.I., & Ambrose, S.A. (1994). *The New Professor's Handbook: A Guide to Teaching and Research in Engineering and Science*. Bolton, MA: Anker Publishing.

Davis, B.G. (1993). *Tools for Teaching*. San Francisco: Jossey-Bass.

Detterman, D.K. & Sternberg, R.J., Editors (1993). *Transfer on Trial: Intelligence, Cognition, and Instruction*. Norwood, NJ: Ablex Publishing.

Elbow, P. (2000). *Everyone Can Write*. New York: Oxford University Press.

Erickson, B.L. and Strommer, D.W. (1991). *Teaching College Freshmen*. San Francisco: Jossey-Bass.

Evans, N.J., Forney, D.S. & Guido-DiBrito, F. (1998). *Student Development in College*. San Francisco: Jossey-Bass.

Fassinger, P. (1995). Understanding Classroom Interaction: Students' and Professors' Contributions to Students' Silence. *Journal of Higher Education*, 66 (1), 82-96.

Fulwiler, T. (1987). *Teaching with Writing*. Portsmouth, NH: Boynton/Cook Publishers.

Johnson, D.W, Johnson, R.T. & Smith, K. (1991). *Cooperative Learning: Increasing College Faculty Instructional Productivity*. ASHE-ERIC Report No. 4. Washington, DC: George Washington University.

Leamson, R. (1999). *Thinking about Teaching and Learning: Developing Habits of Learning with First Year College and University Students*. Sterling, VA: Stylus.

MacGregor, J., Cooper, J.L., Smith, K.A. & Robinson, P. (2000). *Strategies for Energizing Large Classes*. *New Directions for Teaching and Learning*, no. 81. San Francisco: Jossey-Bass.

McKeachie, W.J. (1999). *Teaching Tips: Strategies, Research and Theory for College and University Teachers*. 10th Edition. New York: Houghton Mifflin.

McKeachie, W.J., Pintrich, P.R., Lin, Y.G. and Sharm, R. (1986). *Teaching and Learning in the College Classroom: A Review of the Research Literature*. Ann Arbor, Michigan: National Center For Research To Improve Postsecondary Teaching and Learning.

*Promoting Academic Integrity: A Discussion Guide for the CMU Community* (1995). Office of the Dean of Student Affairs and University Teaching Center, Carnegie Mellon University.

Stone, W. (1990). *You Can Get Good Help These Days: Working with Teaching Assistants in Large Lecture Classes*. In M.A. Shea (Ed.), *On Teaching* (pp. 43-55). Boulder, CO: Faculty Teaching Excellence Program.<sup>TM</sup>

Sutherland, T.E. & Bonwell, C.C. (1996). *Using Active Learning in College Classes: A Range of Options for Faculty*. *New Directions for Teaching and Learning*, no. 67. San Francisco: Jossey-Bass.

VanderStoep, S.W. & Seifert, C.M. (1994). *Problem Solving, Transfer, and Thinking*. In P.R. Pintrich, D.R. Brown, & C.E. Weinstein (Eds.), *Student Motivation, Cognition, and Learning: Essays in Honor of Wilbert J. McKeachie* (pp. 27-49). Hillsdale, NJ: Lawrence Erlbaum Associates.

# Acknowledgments

We thank the University First-Year Council and the many others who contributed their strategies during a series of discussions about first-year students:

Cristina Amon, Joe Ballay, Peter Berget, Dick Block, Charlee Brodsky, Dick Buchanan, Jennifer Church, Todin Coziahr, Jim Daniels, Cliff Davidson, Kimberly DiDonato, Tom Ferguson, Stephen Fienberg, Allan Fisher, Paul Fowler, Jim Garrett, Joel Greenhouse, Bill Hammack, Jed Harris, Dick Hayes, Gloria Hill, Lily Hou, Steve Klepper, Ed Ko, Ken Kotovsky, Barbara Lazarus, Bruce Maggs, Darren Maura, Mark Mentzer, Anne Mundell, Tresa Pollock, Kathryn Shaw, Bruce Sherwood, David Sholl, David Shumway, Peter Stearns, Michael West and John Woolford.

This project was funded by the Office of the Provost.

## Statement of Assurance

Carnegie Mellon University does not discriminate and Carnegie Mellon University is required not to discriminate in admission, employment, or administration of its programs or activities on the basis of race, color, national origin, sex or handicap in violation of Title VI of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973 or other federal, state, or local laws or executive orders.

In addition, Carnegie Mellon University does not discriminate in admission, employment, or administration of its programs on the basis of religion, creed, ancestry, belief, age, veteran status, sexual orientation or in violation of federal, state, or local laws or executive orders. While the federal government does continue to exclude gays, lesbians and bisexuals from receiving ROTC scholarships or serving in the military, ROTC classes on this campus are available to all students.

Inquiries concerning application of these statements should be directed to the Provost, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone (412) 268-6684 or the Vice President for Enrollment, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone (412) 268-2056.

Obtain general information about Carnegie Mellon University by calling (412) 268-2000.



**T**he Eberly Center for Teaching Excellence, formerly the University Teaching Center, was established in 1982 to organize and conduct programs to improve the quality of instruction at Carnegie Mellon. In recognition of support from the Eberly Family Charitable Trust, the Center was renamed in 1996. The Center helps faculty and graduate students to improve teaching practices by gaining an understanding of cognitive and educational principles of teaching and learning by reflecting, practicing and receiving feedback on course design and classroom performance.

The Center for Teaching offers public forums to discuss and explore issues related to teaching and learning as well as private consultations on course design, implementation and evaluation. Individual consultations are strictly confidential.

Whenever possible, the Center facilitates discussions of teaching and learning across departments and colleges to address common concerns, facilitate interdisciplinary collaborations and to help transfer and adapt successful strategies to a variety of contexts. The Center aims to respond to the continually changing educational needs of the campus community.

In addition to a number of graduate teaching fellows, the staff of the Eberly Center includes:

*Director* Dr. Susan Ambrose [sa0n@andrew.cmu.edu](mailto:sa0n@andrew.cmu.edu)  
Associate Provost for Educational Development and Principal Lecturer, Department of History

*Assistant Director, Faculty Support* Dr. Therese Huston [th1w@andrew.cmu.edu](mailto:th1w@andrew.cmu.edu)  
Adjunct Professor, Department of Psychology

*Assistant Director, Graduate Student Support* Dr. Michele DiPietro [dipietro@andrew.cmu.edu](mailto:dipietro@andrew.cmu.edu)  
Adjunct Professor, Department of Statistics

*Educational Assessment Specialist* Dr. Anne Fay [af25@andrew.cmu.edu](mailto:af25@andrew.cmu.edu)  
Adjunct Professor, Department of Psychology

*Administrative Assistant* Michelle Pierson [mg2e@andrew.cmu.edu](mailto:mg2e@andrew.cmu.edu)

*Communications Consultant* Lisa Ritter [lr2c@andrew.cmu.edu](mailto:lr2c@andrew.cmu.edu)

*Best Practices for Teaching First-Year Undergraduates: Strategies from Experienced Faculty*

©2002, Eberly Center for Teaching Excellence  
Carnegie Mellon University, Pittsburgh, Pennsylvania

For additional copies, call (412) 268-2896

About the  
Eberly  
Center for  
Teaching  
Excellence

