

LaGuardia Community College  
CITY UNIVERSITY OF NEW YORK



# Academic Peer Instruction

## Reference and Training Manual (with answers)

by  
Joyce Zaritsky and Andi Toce

[www.lagcc.cuny.edu/api](http://www.lagcc.cuny.edu/api)



Copyright ©2012-2013 Joyce Zaritsky and Andi Toce  
February 2013



## About The Authors



**Dr. Joyce Zaritsky** is a professor on the faculty of LaGuardia Community College (CUNY). She holds a B.A. from Brandeis University, an M.A.T. from Harvard University and an Ed.D from Yeshiva University. Dr. Zaritsky initiated, developed and has run the Academic Peer Instruction (API) program at the college since its inception in 1993. This manual contains materials she developed and compiled for training tutors.



**Andi Toce** is a Ph.D candidate at the Graduate Center (CUNY). He holds a M.A in Computer Science from Queens College (CUNY). He first joined the Academic Peer Instruction program at LaGuardia Community College in 2003 as a tutor for mathematics and computer science courses. He is currently the Assistant Director for the program, a position he has held since 2004.

# *Acknowledgements*

First and foremost, we would like to thank the more than 350 students who have served as API tutors since API was instituted in 1993. They, above all, have been an inspiration to us for the creative ideas and suggestions they have provided, that have helped us write this manual. In addition, their dedication, intelligence and perseverance have taught us that LaGuardia is an institution with truly outstanding students who are more than capable of joining our academic community or pursuing any other challenging careers in the future. We have learned as much from them as we hope they have learned from us. Many of the materials developed for this manual would not exist without their thoughts and ideas. We would also like to acknowledge the following professors and staff at LaGuardia Community College for their help with this project: John Chaffee, Kamal Hajallie, Edward Hollins, Arthur Lau, Natalia Mosina, Joanne Reitano, Jeanne M. Viviani and Frank Wang. In addition, the entire API program, which this manual is a product of, would not exist without the continuous and generous support of people in the administration who are too numerous to mention. We list only a few here: Paul Arcario, Bruce Hoffacker and Gail Mellow. Finally, our thanks to the LaGuardia Foundation and the Student Government for their generous support and to the many faculty members who have worked with us to make API a success!



# *API Pre-Test*

## **Instructions: Work on this exercise with a partner.**

You are a first time API tutor tutoring Principles of Accounting I. You meet Barry, who is a student in the class you are tutoring.

### **About Barry**

You run into him when you are in line, buying your lunch in the cafeteria and start chatting. He invites you to sit down and join him for lunch. You do so, and he starts talking to you. He tells you that he grew up and still lives with his family in Brooklyn. His mother is a beautician and his father, a car mechanic. He has an older brother in the army who is stationed in Afghanistan and a younger sister who is in middle school. He is 23. He has been out of school since high school and working full time as a salesman in a men's clothing shop. "Great for dressing," he says. You look at him with a different eye and notice that he is wearing a bright yellow sport shirt and finely pressed chinos. He tells you that he started college two semesters ago and has 'lived through' and passed remedial Math and English. He is the first one in his family to attend college and is very proud of that fact, as are his parents. Not only does he want to complete an A.A. at LaGuardia, but plans to transfer to Baruch afterwards and major in accounting. However he is worried about getting in to Baruch because of his poor grades.

You ask him how he is doing and he tells you that so far he is getting mostly C's. He now has a G.P.A. of 2.5. "I study a lot," he says, "but I can't seem to get any A's and only rarely a B." He then tells you that he desperately wants to raise his grades.

"Why don't you come to my API sessions?" you ask, expecting he will tell you that he is too busy because of his full time job. "I prefer studying alone at home. I am not into group learning. I like to do everything on my own, but now I am not so sure that I can," he says, before digging into his hamburger and fries.

Barry also tells you that besides his job at the clothing store, he likes to go to the gym and work out. He also has a girlfriend Carol, who is a LaGuardia student,

majoring in accounting. They like to hang out together but don't ever study together. "She's a straight A student," he says. "I'd feel dumb studying with her. She might not want to go out with me anymore if she ended up tutoring me."

## EXERCISES

1. With a partner, list 5 questions you would like to ask Barry if you had lunch with him. (Don't ask him about his hamburger, please!)

### Questions:

- (a) \_\_\_\_\_
- (b) \_\_\_\_\_
- (c) \_\_\_\_\_
- (d) \_\_\_\_\_
- (e) \_\_\_\_\_

2. Role play this scene with one of you being the 'tutor' and the other one playing Barry. The person playing 'tutor' should ask the questions you wrote for Barry. S/he should then write the answers Barry gives below. Then the two of you should switch roles. Again write the answers.

**Answers: Tutor:**\_\_\_\_\_, **Barry:**\_\_\_\_\_

- (a) \_\_\_\_\_
- (b) \_\_\_\_\_
- (c) \_\_\_\_\_
- (d) \_\_\_\_\_
- (e) \_\_\_\_\_

**Answers: Tutor:**\_\_\_\_\_, **Barry:**\_\_\_\_\_

- (a) \_\_\_\_\_
- (b) \_\_\_\_\_
- (c) \_\_\_\_\_
- (d) \_\_\_\_\_

(e) \_\_\_\_\_

3. Now together write five (5) conclusions you have drawn from performing this exercise below. Put them on the board to share.

**Conclusions:**

(a) \_\_\_\_\_

(b) \_\_\_\_\_

(c) \_\_\_\_\_

(d) \_\_\_\_\_

(e) \_\_\_\_\_



# Contents

About the Authors	iii
Acknowledgements	iv
API Pre-Test	v
<b>1 Introduction</b>	<b>1</b>
1.1 What Is API?	1
1.2 How Does API Work?	2
1.3 What Have Been Our Results?	2
<b>2 Principles of API</b>	<b>5</b>
2.1 Introduction	5
2.2 Principle I: Promote Active Learning	7
2.3 Principle II: Foster Collaboration	7
2.4 Principle III: Ask Good Questions	10
2.4.1 Bloom's Taxonomy- Cognitive Domain	10
2.4.2 Redirecting Questions	15
2.4.3 Open versus Closed-Ended Questions	19
2.4.4 The Socratic Method	22
2.5 Principle IV: Encourage Practice	26
2.5.1 Massed, Distributed and Deliberate Practice	27
2.5.2 Deliberate Practice	29
2.5.3 The Concept of Scaffolding as Related to Practice	29
2.6 Chapter Activities	30
<b>3 API Tutor Responsibilities</b>	<b>33</b>
3.1 API Contract	33
3.2 Tutors' Code of Ethics	35
3.3 Beginning of Semester	36
3.4 During the Semester	36
3.5 End of Semester	38
3.6 The Differences Between the 12-week and 6-week Session	38
3.7 Preventing Sexual Harassment	39

3.8	Promoting Cultural Diversity . . . . .	39
3.9	Peer Observations . . . . .	42
3.10	API Introductory Speech . . . . .	42
3.11	Chapter Activity . . . . .	45
<b>4</b>	<b>Improving API Sessions</b>	<b>49</b>
4.1	Improving and Assuring Attendance at your Sessions . . . . .	49
4.2	Strategies During Sessions . . . . .	53
4.3	The Recalcitrant or Difficult Student . . . . .	58
4.4	Using Visual Tools . . . . .	61
4.5	The Practice or Informal Quiz . . . . .	65
4.6	Cloze Exercises . . . . .	66
4.7	Incomplete Outlines . . . . .	67
4.8	Using the Web . . . . .	68
4.9	Using the Syllabus . . . . .	68
4.10	Reading the Textbook . . . . .	75
4.11	The Modeling Technique . . . . .	77
4.12	Jeopardy and Other Games . . . . .	79
4.13	Warm-up Activities . . . . .	81
4.14	Chapter Activity . . . . .	83
<b>5</b>	<b>API Forms</b>	<b>85</b>
5.1	Planning Log . . . . .	86
5.2	Session Attendance Sheet . . . . .	87
5.3	Class Attendance Sheet . . . . .	88
5.4	Session Cancellation Sheet . . . . .	89
5.5	Beginning of Semester Checklist . . . . .	90
5.6	Beginning of Semester Survey . . . . .	91
5.7	End of Semester Survey . . . . .	93
5.8	Observation Form . . . . .	94
<b>6</b>	<b>Statistics</b>	<b>95</b>
6.1	Total Statistics 1993 - 2011 . . . . .	96
6.2	Sample Statistics. Spring 1, 2010 . . . . .	97
6.2.1	Grade Difference . . . . .	97
6.2.2	Attendance Summary . . . . .	99
6.2.3	Satisfaction Ratings . . . . .	101
6.2.4	Comments . . . . .	102
<b>7</b>	<b>Miscellaneous</b>	<b>111</b>
7.1	API Quiz . . . . .	112
7.2	What would you do? . . . . .	115
7.3	Puzzles . . . . .	117
7.4	Other Activities . . . . .	122

---

<b>8</b>	<b>Answers</b>	<b>125</b>
8.1	Pre-Test Answers . . . . .	125
8.2	Chapter 1 Answers . . . . .	126
8.3	Chapter 2 Answers . . . . .	128
8.4	Chapter 3 Answers . . . . .	148
8.5	Chapter 4 Answers . . . . .	153
8.6	Chapter 7 Answers . . . . .	175
 <b>Bibliography</b>		 <b>187</b>





# Chapter 1

## Introduction



### 1.1 What Is API?

Academic Peer Instruction (API) is a program modeled after a nationally recognized non-remedial peer-tutoring program, Supplemental Instruction [13, 14], that targets high-risk or difficult courses instead of high-risk or failing students. It is presently in place in more than 1000 institutions of higher learning nationally and

abroad. API has been helping students succeed at LaGuardia since the spring semester of 1993 [20, 21].

## 1.2 How Does API Work?

API provides peer tutoring using a slightly different model as compared to most traditional tutoring programs. API targets ‘high risk’ or difficult courses, those courses which have a high failure rate. Excellent LaGuardia students are hired to help their peers in these courses. The students we hire have successfully completed the course and received a B+ or better in it. In addition, we look for students who are friendly, have positive outlooks and are sensitive to the needs of others. The students then re-attend (audit) the course, take notes and organize a minimum of three weekly out-of-class API group study sessions (five hours during our short sessions). The emphasis in these study sessions is on facilitating active learning to help students become more independent learners. Therefore, tutors are intensively trained in techniques of collaborative learning and monitored to make sure they are not standing in the front of the room and lecturing to the students who attend their sessions.

## 1.3 What Have Been Our Results?

Results have been extremely positive, with students who attend API sessions regularly receiving an average of one half to one letter grade higher than students who have not. Students who participate in API sessions are overwhelmingly enthusiastic about API and frequently request it for their other courses. API student leaders or tutors are likewise excited about their participation in this program. In fact, as a result of being API tutors, many express an interest in pursuing graduate degrees and have done so at prestigious colleges and universities with the goal of themselves becoming college faculty. (See chapter 6 for more statistics.)

**Activity 1.1.** Answer the following questions. These questions are based on Bloom's Cognitive Domain Taxonomy (see section [2.4.1](#)).

1. **Remembering:** What do the letters 'API' stand for?

**Answer:** \_\_\_\_\_  
\_\_\_\_\_

2. **Understanding:** Explain how API works?

**Answer:** \_\_\_\_\_  
\_\_\_\_\_

3. **Applying:** What have you done in the past that might prepare you for being an API tutor?

**Answer:** \_\_\_\_\_  
\_\_\_\_\_

4. **Analyzing:** Compare other tutoring programs with API tutoring? How is API different? How is it the same?

**Answer:** \_\_\_\_\_  
\_\_\_\_\_

5. **Evaluating:** What is the chief value of API? What are its limitations?

**Answer:** \_\_\_\_\_  
\_\_\_\_\_

6. **Creating:** How could API be improved upon? Be a better program? What are your ideas?

**Answer:** \_\_\_\_\_  
\_\_\_\_\_



# Chapter 2

## Principles of API



### 2.1 Introduction

API is based on the following educational principles: (1) Promote active learning; (2) Foster collaboration; (3) Ask good questions; (4) Encourage practice.

**Activity 2.1.** Discuss with your group which of the above principles the following statements or cartoons exemplify:

1. **Ecclesiastes 4:9-12** Two are better than one, because they have a good return for their labor: If either of them falls down, one can help the other up. But pity anyone who falls and has no one to help them up. Also, if two lie down together, they will keep warm. But how can one keep warm alone? Though one may be overpowered, two can defend themselves. A cord of three strands is not quickly broken.
2. **Martin Luther King, Jr** If a man is called to be a street-sweeper, he should sweep streets even as Michelangelo painted, or Beethoven composed music, or Shakespeare wrote poetry. He should sweep streets so well that all the host of heaven and earth will pause to say, here lived a great street-sweeper who did his job well.
3. Cartoon of boy returning from his first day of school.



FIGURE 2.1: After the first day of school (author unknown).

## 2.2 Principle I: Promote Active Learning

One of the primary principles of API is the concept of ‘active learning.’ [4, 16] In fact, you will see that the other principles are all intended to contribute to this primary principle. As a tutor, your primary goal should be to encourage and promote students’ active learning. What does this mean? The students who attend your sessions need to experience learning as a process in which they construct knowledge with you the tutor and the other students supporting them. The tutor in API is not a teacher - the class already has a teacher, but a ‘coach’ or ‘facilitator.’

**Activity 2.2.** 1. *Explain the difference between a coach and a teacher.*

---

---

2. *Define: ‘active’* \_\_\_\_\_

3. *Define: ‘process’* \_\_\_\_\_

**Activity 2.3.** *Viewing and analyzing an API session with respect to the concept of active learning. With a partner, write comments about the video or videos we watch. (1) First identify who is the tutor. Explain your answer. (2) Then describe how the tutor in this session promotes active learning. (3) Make a list of what s/he does: (and doesn’t do!)*

---

---

---

---

## 2.3 Principle II: Foster Collaboration

**Definition:** ‘Collaborative learning’ is an umbrella term for a variety of educational approaches involving joint intellectual effort by students, or students and teachers together. Usually, students are working in groups of two or more, mutually searching for understanding, solutions, or meanings, or creating a product. Collaborative learning activities vary widely, but most center on students’ exploration or application of the course material, not simply the teacher’s presentation

or explanation of it [19]. In order to be effective, collaboration should require some tangible or visible output and be challenging enough to engage students. If used in a tutoring situation, the activity should also have a time limit and be easily evaluated.

TABLE 2.1: Comparison of Learning Methods

Lecture	Collaborative Learning
Instructor is the source of authority	Multiple sources and authorities
Instructor responsible for learning	Students responsible for learning
Passive learning	Active learning
Competitive learning	Cooperation fostered
Isolation fostered	Community fostered
Multiculturalism in curriculum	Multiculturalism in practice

**Activity 2.4.** *Describe your experiences with group work. What has worked? What hasn't? Why?*

**Activity 2.5.** *Explain what the following concepts required for collaborative learning mean:*

1. *Require tangible output:* \_\_\_\_\_

\_\_\_\_\_

2. *Based on important course concepts:* \_\_\_\_\_

\_\_\_\_\_

3. *Require complex problem solving:* \_\_\_\_\_

\_\_\_\_\_

4. *Ask higher level questions (Bloom):* \_\_\_\_\_

\_\_\_\_\_

5. *Have a time limit for completion:* \_\_\_\_\_

\_\_\_\_\_

6. *Have clear criteria for evaluation of the group's work:* \_\_\_\_\_

\_\_\_\_\_



**Activity 2.6.** Explain the reason the following conditions are beneficial when forming learning groups:

1. It is better to assign membership (put students into groups). It is usually not a good idea to let them form groups on their own. Why?

---

2. Create heterogeneous groups. Why?

---

3. Make your groups small in size (2-3, no more than 4 students). Why?

---

4. Make sure your groups have an assigned leader who will report the work of the group. Why?

---

5. Rotate roles. Why?

---

**Activity 2.7.** Read the following summary about Uri Treisman and his work and then answer the questions that follow:

**I. (Uri Treisman's research on the success of groupwork)** [11] Uri Treisman, a professor of mathematics who taught calculus at University of California, Berkeley, demonstrated that he could greatly improve the success rate of his Black students by teaching them to work in groups - he called them workshops. He developed these group workshops for his calculus classes after discovering that his Chinese students were excelling and his Black students were doing very poorly, many failing. He decided to research how his students studied by actually visiting them and watching how they studied. He found that although both groups were dedicated and good students, having done well in mathematics in high school, his Chinese students had formed groups, they called 'study gangs,' in which they studied together helping each other to improve their calculus knowledge. In contrast, his Black students, for the most part, studied alone. When asked why, they responded that they had always studied alone and it had worked for them in high school. What Treisman then did, was develop mathematics workshops based on his Chinese students' 'study gangs.' In these workshops, students worked collaboratively in small groups with more expert leaders - usually graduate students. The workshop leader

*facilitated problem solving by providing hints and clues but not doing the work for the students. Treisman's results? Very shortly, his Black students who attended these workshops, were performing as well, if not better than his Chinese students. Treisman had demonstrated that it is not innate ability but group study that can make a huge difference in success in learning a difficult subject such as calculus. (You can read much more about his work in [11])*

## **II. Questions to answer based on this article: (using Bloom's Cognitive Domain Taxonomy, see section 2.4.1)**

*Level 1: Remembering: Name the mathematician who is the focus of this article? What is his position?*

*Level 2: Understanding: Explain what this mathematician discovered about the students in his calculus classes?*

*Level 3: Applying: What did the mathematician do to explore the reasons for what he found?*

*Level 4: Analyzing: What did the author do to improve the disparity he found? Explain how his mathematics workshops operated?*

*Level 5: Evaluating: Explain why you think that the students in 'study gangs' performed so much better than those who studied alone?*

*Level 6: Creating: How are Treisman's mathematical workshops similar to API study sessions? How are they different?*

## **2.4 Principle III: Ask Good Questions**

How and when we ask questions, when we refuse to answer questions by redirecting them, the type of questions we ask and avoiding certain questions is the scope of this section.

### **2.4.1 Bloom's Taxonomy- Cognitive Domain**

Bloom's Taxonomy [3] is a method of classifying educational activities based on their level of difficulty. There are 6 levels going from the simplest to the most complex. For API tutors it is a way of being sure that when they ask questions in their sessions or create questions for practice quizzes, they are engaging their

students in thinking that ranges from the simplest to the most difficult. Figure 2.2 taken from the website ([http://www.odu.edu/educ/roverbau/Bloom/blooms\\_taxonomy.htm](http://www.odu.edu/educ/roverbau/Bloom/blooms_taxonomy.htm)) is an image of Bloom's Taxonomy. Note that the levels are written as verbs and the chart below is meant to help you formulate questions at all 6 levels starting with 'Remembering' - the simplest level to 'Creating' - the 6th and highest level.

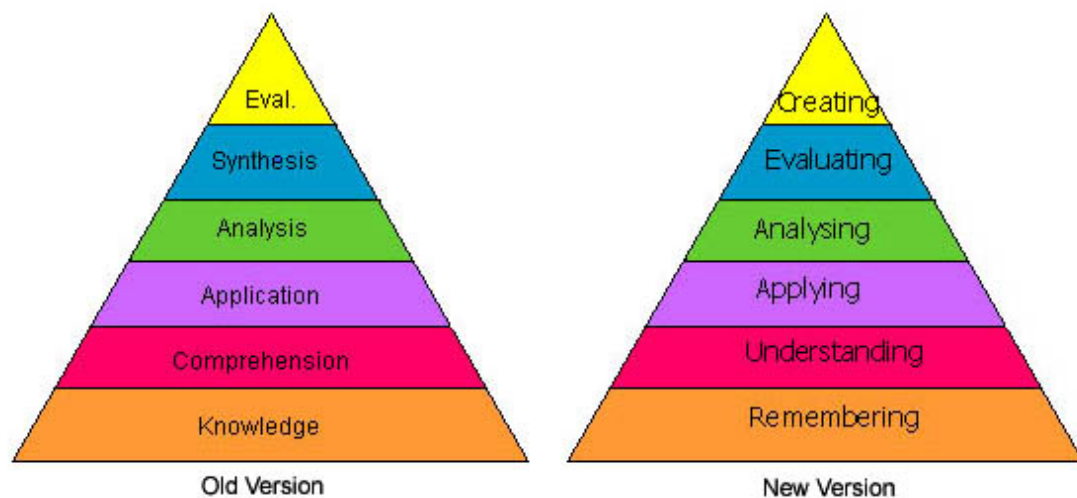


FIGURE 2.2: Bloom's Taxonomy

**Activity 2.8.** *With one or two partners, write six (6) questions about API using Bloom's Taxonomy. The first question is provided here as a sample:*

*Level 1 : Remembering: What do the letters API stand for?*

*Level 2: Understanding: \_\_\_\_\_*

*Level 3: Applying: \_\_\_\_\_*

*Level 4: Analyzing: \_\_\_\_\_*

*Level 5: Evaluating: \_\_\_\_\_*

*Level 6: Creating: \_\_\_\_\_*

**Activity 2.9.** *(Sample activity for an API session) Needed: A handout that you photocopy containing: (1) Any page or pages containing difficult and important information. (2) Another page that you construct with 6 questions for your students that follow Bloom's Taxonomy, going from the most simple to the most difficult. Provide NO answers.*

**Activity 2.10.** *Together with your group, write six (6) questions based on the following brief story about this LaGuardia student. Then answer the questions. Put your work on the board.*

*Barbara graduated from Jamaica High School with a B+ average. She loves sports and was a star on her school's basketball and volleyball team. She thinks of herself as 'smart' because she was always able to do well in her classes in high school without doing much studying. She is an attractive young woman and although she doesn't have a boyfriend right now, she has many friends and loves to party. As she puts it best, "weekdays are for school and work, but weekends are for partying." She loves to dance and is particularly good at salsa and merengue. In addition, Barbara also loves to shop for fashionable clothing. She has a part-time job at an expensive clothing store and spends almost everything she earns at the store. "It's a great deal," she says, "because they give me a 40% discount on the clothing."*

*She came to LaGuardia because she decided she wanted to become a nurse and heard that LaGuardia had an excellent nursing program. Now she is enrolled in Fundamentals of Biology - otherwise known as Anatomy and Physiology and is also taking three other difficult courses. She has also joined the Salsa Club and spends several hours a week in school with her friends from this club. She is proud of the fact that she was just elected President of this club.*

*In late April, Barbara started to come to API sessions for help. She told the tutor that she has a 75 average on her biology exams and needs to get an A in this course if she is to get into the nursing program. When the tutor asked her about her studying and her class attendance, Barbara reported that she attends class and lab religiously, takes notes and studies by reading over her notes the night before her exams. She did this in high school and got A's and B's. She is very puzzled.*

**Questions:**

Level I question: \_\_\_\_\_

Level II question: \_\_\_\_\_

Level III question: \_\_\_\_\_

Level IV question: \_\_\_\_\_

Level V question: \_\_\_\_\_

Level VI question: \_\_\_\_\_

**Answers:**

- I. \_\_\_\_\_
- II. \_\_\_\_\_
- III. \_\_\_\_\_
- IV. \_\_\_\_\_
- V. \_\_\_\_\_
- VI. \_\_\_\_\_

**Activity 2.11.** Fill in the blanks.

1. Bloom's \_\_\_\_\_ is an excellent source for developing \_\_\_\_\_.
2. Its purpose is to \_\_\_\_\_ questions according to levels of \_\_\_\_\_.
3. There are \_\_\_\_\_ levels of questions according to Bloom.
4. The lowest level of the revised taxonomy is: \_\_\_\_\_.  
This lowest level requires students to: \_\_\_\_\_.
5. The highest level is: \_\_\_\_\_. It requires students to: \_\_\_\_\_.
6. "Summarize this article in your own words" is an example of level \_\_\_\_\_.
7. "Explain how this problem is similar to this other problem." This is a level \_\_\_\_\_ question.
8. What is the value of Bloom's method of questioning?
9. How might you use Bloom in developing materials for your sessions?

**Activity 2.12.** An informal quiz: reviewing Bloom's taxonomy.

*Instructions: The following are questions written about API. For each question, identify which level the question reflects using Bloom's revised taxonomy as a guide. Then justify your answer. DO NOT ANSWER THE QUESTIONS.*

1. Devise a tutoring system using API as a basis, that would work in high schools.  
Level: \_\_\_\_\_  
Justification: \_\_\_\_\_

- 
2. *What do the letters 'API' stand for?*  
Level: \_\_\_\_\_  
Justification: \_\_\_\_\_
  3. *Describe how API works:*  
Level: \_\_\_\_\_  
Justification: \_\_\_\_\_
  4. *Why does API work?*  
Level: \_\_\_\_\_  
Justification: \_\_\_\_\_
  5. *How could API be changed so it would become a better program? What are your ideas?*  
Level: \_\_\_\_\_  
Justification: \_\_\_\_\_
  6. *What year was API started at LaGuardia?*  
Level: \_\_\_\_\_  
Justification: \_\_\_\_\_
  7. *Describe the limitations of API:*  
Level: \_\_\_\_\_  
Justification: \_\_\_\_\_
  8. *How is API as a tutoring program distinct from other tutoring programs?*  
Level: \_\_\_\_\_  
Justification: \_\_\_\_\_
  9. *What is a taxonomy?*  
Level: \_\_\_\_\_  
Justification: \_\_\_\_\_
  10. *Describe the role of an API tutor as compared to the role of a professor:*  
Level: \_\_\_\_\_  
Justification: \_\_\_\_\_

### 2.4.2 Redirecting Questions

**Example 2.1.** *A man stops you on the street and asks you “What time is it?”  
You reply: “What time do you think it is?”*

**Definition** Redirecting questions is a technique that encourages active learning by requiring the tutor to refuse to answer any question that could be answered in any way, shape or form by the student or other students at the session. Instead of answering, the tutor must ‘redirect’ the question back to the group forcing them to think about all possible answers or solutions. It is a technique that is inherently unnatural and therefore difficult because it forces the tutor to refuse to give information s/he knows and has, and would naturally be more than happy to supply.

**Why redirect questions?** It is not our goal to provide answers which then support passive learning or a dependent relationship between the students and the tutor. Our goal is to create independent, self-sufficient learners, students who are capable of learning to function on their own. We will not be available all the time, we are not the ones who will be taking the tests. If we cannot help students to become active students who can function independently, we have failed. Redirecting questions is a technique or strategy that forces us to ‘give up ownership’ and make the student become the ‘owner’ of the search for learning and knowledge. It is difficult because people who choose roles as helpers i.e. tutors or teachers want to help others and find it unnatural to withhold information. Our students often know much more than they give themselves credit for knowing. What they lack is not knowledge, but self-confidence. They believe they cannot answer questions correctly or solve problems independently. When we use this technique, some students will initially become angry and annoyed with us. They don’t understand why we refuse to tell them the answers.

**Activity 2.13.** *The following are statements that a tutor can use when redirecting questions. Fill in the blanks:*

1. *“I am not here to give you \_\_\_\_\_ but to help you find them.”*
2. *“I am \_\_\_\_\_ to help you learn.”*

3. "I will not be taking your \_\_\_\_\_ or exams. I promise to help you when you are completely \_\_\_\_\_, but I want you to begin trying to do more and more on your \_\_\_\_\_."
4. "The more you do on your own, the more \_\_\_\_\_ you will become as a learner and the less you will need me to help you."
5. "I want you to get to a \_\_\_\_\_ where you don't need a tutor."
6. "Before I answer the \_\_\_\_\_, I want you to try and \_\_\_\_\_ it."
7. "Why don't you just give me the \_\_\_\_\_ of the answer, and we can \_\_\_\_\_ from there."
8. "Can anyone else \_\_\_\_\_ this question? \_\_\_\_\_ this problem?"
9. "What do we have to do \_\_\_\_\_ to answer this question?"
10. "Let's look that up in the \_\_\_\_\_."
11. "That's an excellent \_\_\_\_\_. Many students have problems in this area. Who can \_\_\_\_\_ it? Then we'll go from \_\_\_\_\_."
12. "That is a difficult \_\_\_\_\_. I want all of you to put the \_\_\_\_\_ in your own words to make sure you \_\_\_\_\_ it. Show me what you've \_\_\_\_\_."
13. "What information will you \_\_\_\_\_ to answer this question?"

**Activity 2.14.** According to the Institute for Intercultural Studies when Margaret Mead (1901-1978) died she was the most famous anthropologist in the world. She is known for her field work in American Samoa which culminated in a book "Coming of Age in Samoa" [15] which became a bestseller and was translated into many languages. She wrote 20 other books and co-authored an equal number. She



*is known as being the first anthropologist to look at human development in a cross-cultural perspective. She was awarded the Presidential Medal of Freedom after her death in 1978.*

**Read the Margaret Mead quotes below:** (<http://www.brainyquote.com>)

1. *“A city is a place where there is no need to wait for next week to get the answer to a question, to taste the food of any country, to find new voices to listen to and familiar ones to listen to again.”*
2. *“Never doubt that a small group of thoughtful committed citizens can change the world.”*
3. *“Always remember that you are absolutely unique. Just like everyone else. ”*
4. *“And when our baby stirs and struggles to be born it compels humility: what we began is now its own. ”*
5. *“Anthropology demands the open-mindedness with which one must look and listen, record in astonishment and wonder that which one would not have been able to guess. ”*
6. *“As long as any adult thinks that he, like the parents and teachers of old, can become introspective, invoking his own youth to understand the youth before him, he is lost. ”*

**Now do the following:**

1. *In groups of 3 or 4 write six generic questions based on Bloom’s Taxonomy that you could ask about one of these quotations. Write your questions here:*

- (a) *Remembering question:* \_\_\_\_\_
- (b) *Understanding question:* \_\_\_\_\_
- (c) *Applying question:* \_\_\_\_\_
- (d) *Analyzing question:* \_\_\_\_\_
- (e) *Evaluating question:* \_\_\_\_\_
- (f) *Creating question:* \_\_\_\_\_

2. Then taking turns, one of you is to play the tutor, the others the students. For each quotation, the 'tutor' should ask the 'students' these questions getting the 'students' to answer, using the technique of redirection whenever a student cannot answer or answers incompletely. Then go through this process for all six questions your group wrote. Then we will share.

### Follow up to activity 2.14:

1. As a tutor, how did it feel to refuse to answer the question?
2. As a student, how did it feel to have the tutor refuse to answer?
3. How might you make students feel better about your refusal?

**Activity 2.15.** The following cloze is designed to see if you have become knowledgeable on a very important technique - Redirecting Questions. Fill in the blanks. Be aware that some of the blanks may have more than one correct answer.

A 1..... for questioning that relies on the tutor not answering questions is called 2..... questions. This means that the 3..... should always get 4..... to answer either 5..... own questions or that 6..... students should be encouraged to try. This method will be often met by 7..... by students who may say, "Why won't you just 8..... me the answer?" When a student says, "I can't do it," you should respond by just adding the three letter word: 9..... 10..... questions is very difficult because most of us want to 11..... students and think that answering their questions will 12..... their knowledge. Also, students believe that they only need to 13..... answers, not practice working problems out on their 14..... It is 15..... when using this technique to 16..... that you are not answering their 17..... because you want to be sure that they know the answers. You are not doing it because you want to be 18..... A good way of dealing with this is simply 19....., "I will not be 20..... the test so I want to be sure that you know how to answer it. Often students when 21..... to try to answer a question will say, "I know it, but I can't 22..... it." What that really means is that they don't 23..... it. After all, how could a 24..... write that as an answer on a 25.....? How much credit would he or she 26..... for this answer? You can also say, "Think about it. How would you 27..... if you asked your doctor a question

and s/he 28..... with that response?” Students after they understand this 29..... will get used to your technique of redirecting 30..... They will begin to willingly try to answer their own and other students’ 31..... They will become more willing to come up to the 32..... even if they are not completely 33..... that their work is completely correct. To further encourage this behavior, memorize and 34..... this statement to them on a regular basis: “This is a good 35..... to make mistakes.” Finally, do not go overboard on redirecting 36..... If you sense no one 37..... the answer, don’t allow the level of frustration in the room to rise to 38..... levels. You can offer to do the 39..... and say, “I’ll do this one. Pay attention, because I’m 40..... to ask you to do the 41..... one on your own !” Or, if the hour is ending and you want the 42..... to leave with the right answer, not the 43..... answer, do give them answers. But remember, giving students 44..... should only be the 45..... resort.

### 2.4.3 Open versus Closed-Ended Questions

**Open-ended questions:** [17] These are questions that ask for a long answer. Because they require the student to answer with more than one word they take time to answer. They require thinking and also may have more than one right answer. Their goal is to get a good deal of information from the student. Example: “How did you solve this problem? Show me your steps.”

**Closed-ended questions:** These are questions that can be answered with one or two words or a short phrase, for example, Yes/No or True/False. They give the tutor relatively little information as to how the student came up with the answer. They often require facts. Or they may give students set choices as in multiple-choice questions. Examples: “What is the correct answer to this problem?” or “What is the color of George Washington’s white horse?”

**Summary:** Open ended questions often begin with the words: “What,” “Why,” “How,” “Describe,” “Show,” “Tell.” Closed-ended questions often begin with: “Do,” “Would,” “Are,” “Will,” “If,” but may also begin with “What.”

**Information:** It is incorrect to assume that either of these two types of questions is better than the other. There is a time and place for both types of questions. Therefore your study sessions should include a combination of both open-ended and closed-ended questions.

**Activity 2.16.** *Many tutors find themselves using a preponderance of closed-ended questions with very few open-ended questions. Give at least three reasons why this is so:*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Activity 2.17.** *For the following questions/statements, write whether they are open-ended or closed-ended: Write ‘c’ for closed and ‘o’ for open.*

1. *What is the answer?* \_\_\_\_\_
2. *How do you solve this problem? Explain the steps.* \_\_\_\_\_
3. *Explain in more detail.* \_\_\_\_\_
4. *Can you give me more information about ....?* \_\_\_\_\_
5. *What information did you need to solve this problem?* \_\_\_\_\_
6. *How did you know which formula(s) to use?* \_\_\_\_\_
7. *Do you understand?* \_\_\_\_\_
8. *Tell me what you don’t understand.* \_\_\_\_\_
9. *Do you have any questions?* \_\_\_\_\_
10. *Have you got it?* \_\_\_\_\_
11. *What are your questions?* \_\_\_\_\_
12. *Explain to me where you are confused.* \_\_\_\_\_
13. *What do you mean by .....?* \_\_\_\_\_
14. *How may I help you?* \_\_\_\_\_

15. Show me how you: solved this problem, did this entry, figured out the solution to this puzzle, arrived at this answer or conclusion. \_\_\_\_\_
16. What is the date of the exam? \_\_\_\_\_
17. How many of you answered this question correctly? Raise your hands. \_\_\_\_\_
18. What is your e-mail address? \_\_\_\_\_
19. How many levels are there in Bloom's Taxonomy? \_\_\_\_\_
20. Describe each of Bloom's levels giving its name and what it involves. \_\_\_\_\_
21. Do you like Chinese food? \_\_\_\_\_
22. What kinds of ethnic foods do you enjoy eating? \_\_\_\_\_
23. Is LaGuardia College a good place for you? \_\_\_\_\_
24. Why did you choose to come to LaGuardia College? \_\_\_\_\_
25. What color is Dr. Zaritsky's brownish/grey hair? \_\_\_\_\_

**Final note:** A closed-ended question can easily be turned into or followed up by an open ended question. Example: The closed-ended question "What is the correct answer to this problem?" This can be followed up by the open-ended question: "Tell us how you got this answer?"

**Final question:** How might you follow up a closed-ended question that all of us ask at some time or another: "Do you understand?"

---

**Activity 2.18.** Get together with other tutors that tutor the same or similar courses. Write 3 closed-ended questions and 3 open-ended questions you might ask your students.

Subject matter: \_\_\_\_\_

**Closed-Ended Questions:**

1. \_\_\_\_\_
2. \_\_\_\_\_

3. \_\_\_\_\_

***Open-Ended questions:***

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

### 2.4.4 The Socratic Method

**About Socrates:** Socrates (469-399 BC) was a Greek philosopher who was Plato's teacher. He was probably the most honored and respected of all of the philosophers of the Western world. Socrates lived in Athens in a period known as the Golden Age - a period when great philosophers and thinkers lived (445-431 BC). Athens at that time was a city that represents the ideal as the first democracy. It was a place devoted to human excellence in mind and body, to philosophy, the arts and sciences and to the cultivation of the art of living. The Athenian state had a constitution and a supreme court. All citizens were equal under the law and could vote.

If you would like to learn more about Socrates and other famous Greek philosophers and dramatists such as Aeschylus, Euripides, Plato as well as others, there are many sources, including the following : (Egan, K. *The Educated Mind: How Cognitive Tools Shape Our Understanding* (1997), University of Chicago Press, ISBN 0-226-10936-6 or Taylor, C.C. W. (2001) *Socrates: A Very Short Introduction*, Oxford: Oxford University Press). Or better yet, take a philosophy course at LaGuardia.

**Activity 2.19.** *Some of Socrates's philosophy and beliefs are summarized in the following four statements. For each statement: (a) Explain what the statement means by rephrasing it in your own words and (b) State whether or not you agree with it and explain why.*

1. *"The only true wisdom consists in knowing that you know nothing. "*

(a) \_\_\_\_\_  
\_\_\_\_\_

(b) \_\_\_\_\_  
\_\_\_\_\_

2. *“The care for wisdom and truth is the highest good. Virtue does not come from money, but from virtue comes money and every other good thing for mankind.”*

(a) \_\_\_\_\_  
\_\_\_\_\_

(b) \_\_\_\_\_  
\_\_\_\_\_

3. *“Virtue = knowledge. To know the good is to do the good. Evil, wrongdoing are due to the lack of knowledge or ignorance. Socrates: “No one does evil voluntarily.” We do evil, thinking it will bring good. (A thief who steals a diamond ring thinks it will bring good - impress others, bring a better life, provide sexual favors.)*

(a) \_\_\_\_\_  
\_\_\_\_\_

(b) \_\_\_\_\_  
\_\_\_\_\_

4. *“One needs always to think about life, human nature, the true nature of human beings in order to know what is good for humans and what will bring happiness. - An unexamined life is not worth living.”*

(a) \_\_\_\_\_  
\_\_\_\_\_

(b) \_\_\_\_\_  
\_\_\_\_\_

**The Socratic Method:** This is a method of seeking knowledge by asking leading and difficult questions, and then responding to the answers given, using logic to refute the answers. The overall purpose of this questioning is to get people to question and analyze their knowledge and beliefs. Socrates used this method to question general knowledge. For example: What is piety? What is courage? What is justice? Socrates then would then proceed to refute each definition by showing

that the definition was too narrow. It is said that Socrates' method has strongly influenced the development of the scientific method in which forming a hypothesis is the first stage of inquiry.

**Example 2.2.** (*Book I of Plato's The Republic* )

*Socrates asked Cephalos: "What is justice? "*

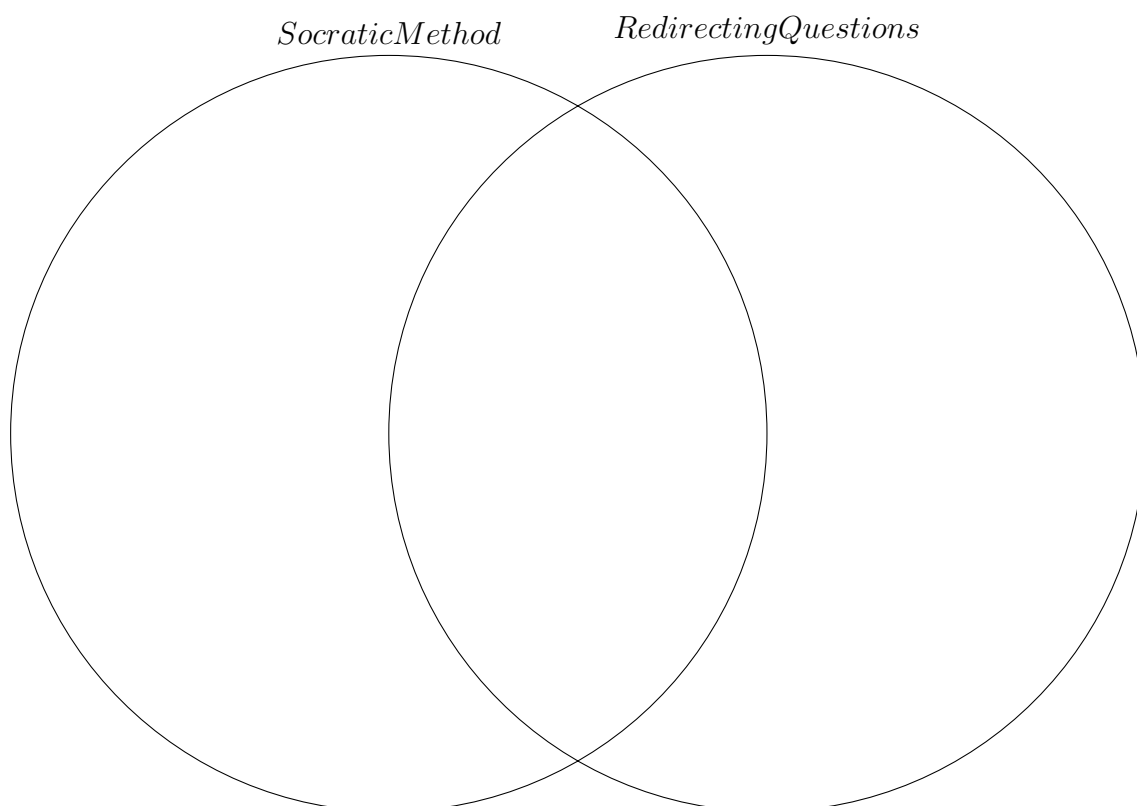
*Cephalos replied: "Justice is speaking the truth and paying one's debts."*

*Socrates replied: "Paying one's debts may be just as when you owe a friend a gun, but since he has become insane, wouldn't it be unjust to return it to him?"*

*Cephalos' argument is therefore refuted.*

*Conclusion: Socrates' method uses the technique of the counter example to mount a series of questions. Sometimes the definition arrived at shows the falsity of the original definition. Often no definition can be reached.*

**Activity 2.20.** *Comparing the Socratic Method with the methodology of redirecting questions: How is the Socratic Method similar to and how it is different from redirecting questions? Use a Venn diagram - supplied below - to answer this question.*





**Applying the Socratic Method to API:** While most of the time we are not interested in getting students to engage in such deep questioning on such important topics as justice or truth, there is no doubt that the Socratic method can be applied to some of the questioning you use in your sessions. It is especially useful in the cases when a question has more than one correct answer and can be debated.

**Activity 2.21.** *Form groups of 2, 3 or 4. Everyone in the group must be tutoring the same subject area, (for example mathematics, health sciences, natural sciences, accounting, etc.) Each group should develop 4 questions that represent a form of Socratic questioning related to their subject area. Write your questions below.*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

*Then for each question, discuss what kind of answers you might expect and how you might follow up these answers with more questions: Summarize your discussion of each question below:*

1. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 2.5 Principle IV: Encourage Practice

**Definition:** Practice is commonly defined as the repetition of an activity or behavior for the purpose of mastering it or becoming expert at it.

**Discussion:** Practice is a very important tool in learning anything that is complex or difficult. Athletes know this, musicians know this, dancers know this, even skate boarders know this, but often students don't realize how important practice is. Unsuccessful students will often blame their failure on one or more of the following: bad luck, a bad teacher, lack of talent or ability - "I'm just not good in mathematics. No one in my family is." It is therefore your role as an API tutor to inform students that if they don't intensively practice what they have learned in class, they are likely to be unsuccessful and fail, not because of any of the above reasons, but because they haven't done enough practice. Malcolm Gladwell in his best selling book, "The Outliers, the Story of Success," [10] devotes a whole chapter to discuss this concept. He calls it, "The 10,000 - Hour Rule." In this chapter, he presents a good deal of research that has been done by psychologists as to the role of innate talent in producing excellence in any difficult or complex task. Researchers ([6, 7, 9]) he says, have concluded that innate talent plays a smaller role than practice. He concludes, "The idea that excellence at performing a complex task requires a critical minimum level of practice surfaces again and again in studies of expertise. In fact, researchers have settled on what they believe is the magic number for true expertise: Ten thousand hours."

Why so many hours? It is only after many, many hours of practice, that we become proficient enough at a difficult task, like solving calculus problems, like playing the violin, like shooting baskets that we get to a point of 'automaticity.' What this means is that we have so perfected the task that we could almost do it in our sleep. It has become 'automatic.' Now, we don't expect our students to put in 10,000 hours and in fact Malcolm Gladwell was not referring to precalculus students like Joe who is described later in this chapter, but to people he calls 'outliers,' people who are exceptional and experts in their fields, for example Bill Gates, Mozart, Steve Jobs as well as others.

**Example 2.3.** *A tourist visiting New York, stops a stranger walking by on the street. "Can you tell me how to get to Carnegie Hall?" he asks. "Sure, I can," the stranger says, "Practice, practice."*

**Example 2.4.** *A story: Joe is a beginning student at LaGuardia. He is very pleased that he has passed the admission test and doesn't have to take any remedial math. His plan is to become an engineer. He likes math and got B's in high school in all his math classes. He signs up for MAT 200 - Precalculus. He attends class diligently and watches as the professor goes through problem after problem, solving them on the board. He thinks he understands the work and is happy that the professor says that he will not collect the homework. He decides that since the homework will not be graded there is no reason to do it. The class has an API tutor but Joe doesn't go to any sessions. He reasons that they are not necessary since he can follow what is going on in class. Then it happens! Joe fails the first test. During the test, he discovers that he could have solved some of the problems, but he was just too slow and couldn't finish them in the time he was given. Other problems seemed familiar but when he started to solve them he found himself getting stuck, not being sure of what to do.*

**Activity 2.22.** *Refer to example 2.4 and discuss the following questions with a partner:*

1. *What do you think is Joe's problem?*
2. *Why do you think he failed this math test, when he understood the material that was presented in class?*
3. *What do you think might be Joe's explanation as to why he failed?*
4. *What would you suggest to Joe to help him do better?*

### 2.5.1 Massed, Distributed and Deliberate Practice

There are two kinds of practice with regard to its spacing - massed and distributed practice. A third type of practice - deliberate practice - is different. It refers to how we actually practice, what we do when we practice, so that it is most effective and results in real improvement of learning.

All of us have at one time or another engaged in massed practice - another word for 'cramming' - trying to learn everything we need to know the night before a test. On the other hand, distributed practice means spacing out our practice over a longer period of time - as an example - attending API sessions twice a week over

a 12 week semester, studying and reviewing every day instead of just before the end of the semester.

**Activity 2.23.** *The following is a cloze exercise about distributed and massed practice. Fill in the blanks:*

*Distributed practice is a technique whereby the student 1..... his/her study effort in a given course over 2..... study sessions that are relatively short in duration. This can be 3..... to massed practice (otherwise known as cramming) whereby the student conducts few but 4..... study sessions for a given course. It has been proved beyond a shadow of a 5..... that meaningful learning is promoted when 6..... practice is conducted. In contrast, massed practice promotes rote 7..... For the long-term benefit of the student, 8..... practice should be the method an excellent student chooses to use. After a 4-5 year college career, a student who followed the distributed practice 9..... would be miles ahead of a student who followed the 10..... practice technique. Unfortunately, some college courses encourage massed 11..... by giving only 2-3 exams during the semester (and little else for assessment). When only 2-3 12..... are given, the student masses study sessions immediately 13..... to each exam. This testing frequency (2-3 exams/semester) also 14..... the less desirable, rote learning. How can a student 15..... distributed practice? Well, it takes motivation and determination to get this all rolling. Probably one good 16..... is to schedule study times on a week to week basis at the beginning of each 17..... That is, set aside one 50 minute 18..... session each day for each course. Do this for Monday through Saturday, leaving Sunday as an off-day or catch-up day or even as a total 19..... day or family day. After the semester gets rolling, 20..... may need to be made. Perhaps some courses don't need the daily 50 minute study session Monday-Saturday, with some sessions skipped 21..... the week. In other cases, some courses may require more than 22..... daily study session. Only the individual student can judge whether adjustments are 23..... If a student needs so much study time that there isn't enough time in the day to 24..... sessions, that student should consider dropping a 25..... or two. For distributed practice to be successful, the student must be able to follow his/her study 26..... Don't let interruptions spoil it. Think of your study schedule as a 27..... schedule, something that must be followed. If you find that other people or other activities 28..... you from keeping on schedule, then you are going to falter.*

*Go hide someplace during your 29..... sessions (the library works well for this studying, if you find a corner that is quiet in the stacks).*

### 2.5.2 Deliberate Practice

Deliberate practice, as mentioned above, is not how we space our practice - whether we cram or practice over a period of time (massed versus distributed) - but our style of practice - in other words how we practice or better yet what we do when we practice. It is discussed at length in a book by David Shenk, “The Genius in All of Us [18].” In it, he argues that all of us have the potential to be outstanding in some area and that intelligence is not fixed at birth by our genes, but inherently malleable. Our achievement is based on an interaction between our environment and our genetic makeup. Not only do outliers become great because they practice a great deal, but because they engage in ‘deliberate practice.’ Deliberate practice was first defined by Ericsson [8]. It is practice that is very intense, does not rely on mere repetition, but instead requires the person to always aim higher, work harder and harder, reaching above and beyond his or her current level of competence. It really refers to the type of practice that we hear athletes engage in when training for a marathon or the Olympics. When we engage in deliberate practice, we must constantly analyze what and how we are practicing with the goal of making sure we are improving. “In other words,” Shenk writes, “it is practice that doesn’t take ‘no’ for an answer; practice that perseveres; the type of practice where the individual keeps raising the bar of what he or she considers success. Deliberate practice requires a mind-set of never, ever being satisfied with your current ability [18].” Therefore, for Ericsson, it is not enough to practice for 10,000 hours, as Gladwell proposed, but we must carefully and methodically analyze what and how we study during that time in order for our learning to be effective. In fact, Ericsson, argues that this type of deliberate practice can cause biochemical effects that create actual changes in the brain.

### 2.5.3 The Concept of Scaffolding as Related to Practice

In order for practice to be effective it must be varied. It also should be directed by someone who knows the material so that the learner doesn’t learn wrong information and therefore become worse. In addition, this new process or skill needs to

be supported and broken down into small steps. It must be provided with ‘scaffolding’ - this is practicing with support. The teacher or tutor helps the learner practice by having him vary but repeat the activity but providing the student with less and less help.

## 2.6 Chapter Activities

**Activity 2.24.** *Answer the following questions:*

1. *Which type of practice, massed or distributed do you think has been shown to be more effective in mastering material and really learning it? Why?*
2. *How might the concept of scaffolding be applied in your area?*

**Activity 2.25.** *Fill in the blanks:*

1. *Practice is defined as the \_\_\_\_\_ of an \_\_\_\_\_ or behavior for the purpose of \_\_\_\_\_.*
2. *Malcolm Gladwell, in his book , “The Outliers,” presents research that says that in order to become really expert at a \_\_\_\_\_ task, we need to put in \_\_\_\_\_ hours.*
3. *There are three types of practice: massed, distributed and \_\_\_\_\_.*
4. *Practice must be \_\_\_\_\_ so it doesn’t become too \_\_\_\_\_.*
5. *Gradually giving the student less and less help is called \_\_\_\_\_.*
6. *It is important for students to learn the goal of \_\_\_\_\_ which means that they can perform the task, solve the problem quickly without having to think too much and question their results.*
7. *It is also important to \_\_\_\_\_ beginning stages of practice to \_\_\_\_\_ errors. We don’t want students learning \_\_\_\_\_. Our goal should be \_\_\_\_\_ % level of accuracy.*

8. Without practice, \_\_\_\_\_ of new information can be forgotten within \_\_\_\_\_ hours.
9. Students often object to practice saying: “I know it, but I just can’t \_\_\_\_\_ it.” What this means is \_\_\_\_\_.
10. Often students don’t understand the importance of practice and developing \_\_\_\_\_.
11. Many students think that if they \_\_\_\_\_ what is presented in class there is no need for \_\_\_\_\_.
12. \_\_\_\_\_ practice refers to how we practice.

**Activity 2.26.** Explain the following concepts related to the role of practice:

1. Practice: \_\_\_\_\_
2. Automaticity: \_\_\_\_\_
3. Malcolm Gladwell’s “10,000 hour rule:” \_\_\_\_\_
4. Outliers: \_\_\_\_\_
5. Massed practice: \_\_\_\_\_
6. Distributed practice: \_\_\_\_\_
7. Scaffolding: \_\_\_\_\_
8. Deliberate practice: \_\_\_\_\_

**Activity 2.27.** Complete the following:

1. Bloom’s Taxonomy has \_\_\_\_\_ levels of questions.
2. Going from simplest and most concrete to most difficult and abstract, they are:
  - (a) \_\_\_\_\_
  - (b) \_\_\_\_\_
  - (c) \_\_\_\_\_
  - (d) \_\_\_\_\_

(e) \_\_\_\_\_

(f) \_\_\_\_\_

3. *What is the value of Bloom's Taxonomy as a learning tool?*

\_\_\_\_\_.

\_\_\_\_\_.

4. *How might you use it in your tutoring?*

\_\_\_\_\_.

\_\_\_\_\_.



## Chapter 3

# API Tutor Responsibilities



### 3.1 API Contract

Before becoming an API tutor you will be required to sign a contract that spells out your responsibilities as an API tutor. You need to read it over carefully before signing it so as to make sure you understand what you will be expected to do to

perform your duties successfully. Don't be afraid to ask questions if you are not clear about anything in this contract !

### **The Contract**

I accept the position as an API tutor for the semester and all its responsibilities.

I understand that I will be required to fulfill the following:

1. Attend two days of training prior to the semester. Returning tutors only need to come the second day.
2. Attend all classes of the course including labs, except when an examination is taking place.
3. Provide a minimum of three (3) hours of study sessions per week during the 12 week session (five (5) hours during the 6 week session). Sessions should continue until the day of the final exam.
4. Be available during all classes before and after the targeted course or show a minimum of 12 free hours during the week so that there is flexibility for choosing tutoring hours. A grid showing the available hours needs to be attached prior to signing.
5. Meet with the API Supervisor for one and half hours every week on Wednesday afternoons. Attendance is mandatory.
6. Complete the required paperwork (survey, attendance summary and evaluation essay).
7. Not accept any private, paid tutoring from the students enrolled in the course while employed as an API tutor.
8. In addition, I understand that if the API course I am assigned does not run all efforts will be made to find a substitute course, but if this is not possible, I will not be employed as an API tutor during that semester.

## 3.2 Tutors' Code of Ethics

1. I will treat all students fairly and never discriminate on the basis of age, sex, sexual orientation, religion, nationality or color.
2. I will treat students with respect, fairness, patience, kindness and friendliness.
3. I will never encourage any dishonest behavior such as cheating, copying from others or using the Web in a dishonest way.
4. I will be honest with my students and always tell them when I am not sure or don't know an answer. I will then do my best to supply that information during a subsequent session. At the same time, I will let students know that I cannot answer all questions because I am not a teacher but a student like themselves.
5. I will always be prepared for my sessions by planning them in advance so that the material is relevant to what the professor is teaching.
6. I will use material for my sessions that is not too easy and not too difficult.
7. I will not form any personal relationships with any of my students during the semester that I am tutoring them.
8. I will not accept any money from students.
9. I will keep private any information of a personal nature that a student shares with me.
10. I will come on time to my sessions and always inform students, faculty and the API supervisor when I am going to be late or absent by posting a notice on the classroom door, by e-mailing them or by calling them.
11. I will make up any session that I am forced to cancel due to illness or other personal problems.
12. I will praise students' efforts as much as possible, following the saying, "Compliment publicly, criticize privately."
13. I will never insult or demean a student nor will I criticize a teacher.

14. When students criticize their professor, I will not comment or agree with them. Instead I will tell them to take their complaints directly to the teacher or the chair of the department.
15. Above all, I will act professionally, because I realize that my work as an API tutor will, and can affect the success of a large number of students.

### **3.3 Beginning of Semester**

1. Make sure you are getting paid. Finalize your hiring paperwork.
2. Attend two days of training before the semester starts. Returning tutors need only come the second day.
3. Introduce yourself to the professor and explain your role as a tutor. Get his or her support and advice for attendance and materials.
4. Present a speech to the class at the beginning of the semester and let the students understand your role as well.
5. Conduct a time sheet survey during your speech. Arrange your session schedule based on the survey, and hand it in to the program director or assistant for room scheduling.
6. Get an e-mail address and check it frequently.
7. Form an e-mail group and use it to keep in touch with your students.

### **3.4 During the Semester**

1. Audit the targeted class except when there is an examination.
2. Schedule at least three (3) hours each week of out-of-class tutoring for the students in your class (five (5) hours during the short session). Overall, you will need to provide a minimum of 30 one-hour sessions during a semester. Sessions scheduled before or after the class are usually better attended. You must have enough free time in your schedule to give your students choices.

3. Attend the weekly training meetings. Attendance at these meetings is required. No unexcused absences are permitted! If you must be absent, you must get permission AHEAD of time. More than 2 unexcused absences will be held against you and be taken into consideration for rehiring.
4. Become a mentor/friend to your students. Try to establish a friendly, yet professional relationship with them. For example, if a student misses a session, it is appropriate to tell him/her that you ‘missed’ him/her and encourage him/her to come back.
5. Keep your folder organized and updated. It will be checked every week. NEVER take your folder home. Instead, just remove the pages you need and then replace them. The data in the folder is very valuable to us. We can’t afford to lose it.
6. Fill out your planning logs BEFORE each session, making detailed plans.
7. Have students sign in for each tutoring session, printing their names clearly.
8. Create a flier during the semester to promote attendance.
9. Attend class ALL THE TIME. It will help you to understand the needs of students. You must inform and get approval in advance for any absence.
10. Get the signature from the professor certifying your attendance in the class and submit it to us.
11. Attend all your sessions, notifying us about room changes both temporary and permanent before your session. We HAVE TO know where you are!
12. A session without attendance does not count as a regular session; you have to make it up.
13. Sessions have to be held frequently. That means you can’t have a 3-hour session for one day and then not have any for the next 10 days. Make yourself available to the students as much as possible on a weekly basis.
14. Write or update a short biography for our website.

## 3.5 End of Semester

1. During the last week of class, conduct and hand in a student survey. Keep in mind that all students, regardless of whether or not they attended your sessions MUST complete the survey.
2. Hand in the attendance of your sessions summed.
3. Write and hand in a learning experience essay.
4. Submit your fully updated folder.
5. Submit all professor sign in sheets for the last week(s).

## 3.6 The Differences Between the 12-week and 6-week Session

1. You need to “hit the ..... running.” First day of ..... and last day of classes are only ..... weeks apart. This means that you ..... start tutoring by the end of the ..... week, if you are going to ..... 30 hours of tutoring.
2. Surveys need to be done the ..... day, latest the ..... day. Tutoring hours must be ..... by the 2nd or 3rd class ..... As soon as you know the ..... and ..... you wish to tutor, see ..... for room assignments.
3. .... hours of tutoring must be divided into 2 + ..... + ..... hours. A ..... hour session is ..... too long. In addition, sessions must be reasonably ..... Students need continuity. As you know, distributed ..... is better than massed practice.
4. Deal with ..... attendance immediately. What to do? Contact ..... immediately!!!

**Activity 3.1.** *Answer the following questions:*

1. *Why is the 6-week session sometimes considered to be more difficult than the 12-week session?*
2. *Why is the 6-week session sometimes considered to be easier?*

## 3.7 Preventing Sexual Harassment

Sexual harassment is a form of discrimination that violates Title VII of the Civil Rights Act of 1964 and Title IX of the Education Amendment Act of 1972 of the US Government. According to these laws, sexual harassment occurs when “unwelcome sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature .... explicitly or implicitly affects an individual’s employment, unreasonably interferes with an individual’s’ work performance or creates an intimidating, hostile or offensive work environment.”

Sexual harassment is also an important topic in the LaGuardia Community College catalog. It applies to all students and employees - faculty, tutors and staff at the college [1]. To assure that all tutors understand exactly what sexual harassment is and how to recognize it when it occurs, we ask all tutors to take an on-line training program given by the Research Foundation of CUNY. Instructions are given during the training meetings.

**What to do?** If you suspect that sexual harassment is occurring, be sure to report it to the API office or the Coordinator of the Sexual Harassment and Intake Committee at LaGuardia Community College.

## 3.8 Promoting Cultural Diversity

**Introduction:** With regard to race and ethnicity, our LaGuardia student body breaks down as follows: 17% Asian, 16% Black, 37% Hispanic, 10%, White (non Hispanic), 3% Other and 17% Unknown. The chart shown in Figure 8.1 offers a comparison of student race and ethnic background for years 2007 and 2011. Our students come from over 100 countries and speak more than 125 languages!

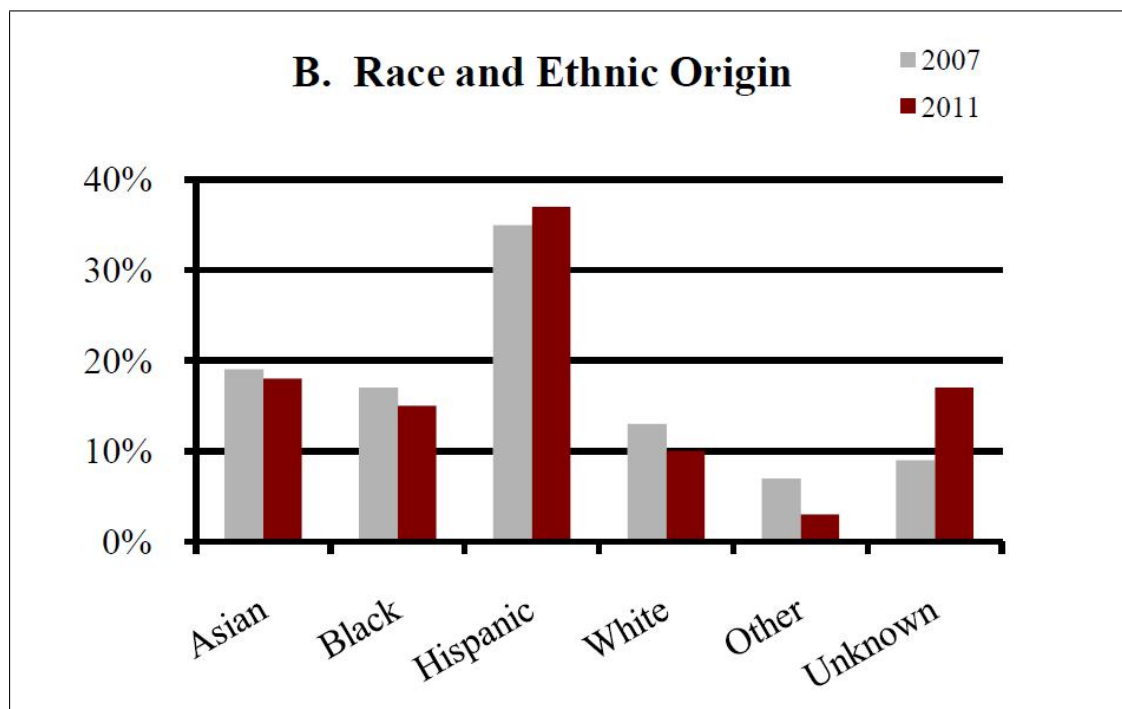


FIGURE 3.1: LaGuardia College Students by Race and Ethnic Origin 2007 - 2011

**Discussion:** (1) What do the above statistics tell you about our student population? (2) How do you think these statistics should affect or change your tutoring?

**Definition:** “Cultural diversity or multiculturalism is based on the idea that cultural identities should not be discarded or ignored, but rather maintained and valued. The foundation of this belief is that every culture and race has made a substantial contribution to American history.” (American Multicultural Publications, Washington Cross, PA Copyright 2007-2012, [www.diversity-book.com/what-is-cultural-diversity.html](http://www.diversity-book.com/what-is-cultural-diversity.html)).

LaGuardia, as an institution prides itself on its cultural diversity. Besides students who are immigrants who are either permanent residents or new citizens, our college attracts a large percentage of international students - students who have come to the US to pursue their educations and then plan to return to their home countries. The college, through its courses and numerous on-campus college-wide events, attempts to create an atmosphere in which all students, regardless of their differences, feel comfortable and accepted. It encourages the appreciation and understanding of all of its students’ diversity. Evidence that LaGuardia places great emphasis on promoting cultural diversity may be found on its website ([www.lagcc.cuny.edu](http://www.lagcc.cuny.edu)). On it, you will find that many faculty members like our



students stem from a wide variety of cultures, ethnicities, races, speak many different languages. In addition, many faculty emphasize the importance of addressing multiculturalism in their courses. Information about these courses as well as articles that address this issue, written by both faculty and students, may be found there. Another source can be found at [2]. If you have problems with a cultural diversity or discrimination issue, there is an office at LaGuardia that may help you (Office of Legal Affairs Compliance and Diversity, contact (718) 482-5077).

**Question:** How can API tutors in their sessions help their students understand our college's cultural diversity and promote understanding amongst its students?

**Activity 3.2.** *Evaluate the following activities as promoting cultural diversity (P) or not (NP):*

1. *Inviting students to bring snacks to share that reflect their cultural or ethnic backgrounds.* \_\_\_\_\_
2. *Telling students that they must forget about what they learned in their home countries and concentrate on becoming 'Americanized.'* \_\_\_\_\_
3. *Encouraging or even assigning students to groups that are diverse.* \_\_\_\_\_
4. *Asking students if they were taught to solve a math problem differently in their home country and if so, explaining how.* \_\_\_\_\_
5. *Have students, when they introduce themselves, provide some information about their countries of origin and backgrounds.* \_\_\_\_\_
6. \_\_\_\_\_  
\_\_\_\_\_
7. \_\_\_\_\_  
\_\_\_\_\_

## 3.9 Peer Observations

During the semester, each tutor is required to observe a peer's tutoring session. Here are the steps you will need to follow:

1. Study the schedule of tutoring and choose a tutoring session that fits your schedule.
2. Pick up an Observation Form. (These may be found on the table next to Dr. Zaritsky's office - E115N. If you have trouble, ask one of us.)
3. Observe the tutoring session you have selected. Note: If you appear and there are already other tutors observing, change your plan. It is not a good idea to have more tutors observing than students attending!
4. Stay at least half an hour, taking notes on the Observation Form.
5. Subsequently meet with the tutor you observed. During this meeting, first ask the tutor you observed what s/he thought of the session, what s/he thought s/he did well, as well as what was missing. Then go over your written and other observations. Rule 1: ALWAYS start with something positive before mentioning any concerns you have. Rule 2: Be kind! Tutoring as you already know, is not an easy task.
6. After the meeting, give the Observation Form to the tutor you observed. The tutor who was observed should then add his/her comments and return it to the API office.

## 3.10 API Introductory Speech

### Speech Overview:

The speech is given the first or second day of classes. It is important to prepare for the speech in advance. You will be able to practice your speech during our two-day training prior to the semester. Write down an outline which you can use during your speech. When you first meet with your professor, introduce yourself and ask him/her to give you 5-10 minutes of class time for your speech and your

survey. Make sure you have enough copies of the first day survey before giving your speech. For more information on the survey see section 5.6.

### **Speech Outline:**

Below is a suggested outline. You may make changes to fit your personal style. The statements listed have been used by tutors during their practice speeches.

Step (1) Introduce yourself.

**Tips:** Write your name and e-mail address on the board. Encourage student to copy this information.

**Possible Statements:** “Hi, My name is Cindy Stone (or Barry Stone?) I’m excited to be your API tutor for this semester for this class. I’ve written my name and e-mail address on the board. Please copy it and do me a favor and send me an e-mail so I’ll have your e-mail address and can keep in touch with you.”

Step (2) Introduce API and how it works.

**Tips:** Write on the board what API stands for. API = Academic Peer Instruction.

**Possible Statements:** “You are probably wondering what API stands for. Well, I’ve written it on the board.” (point to it)

“Who has heard of API before?” (Wait for a show of hands). “Who can tell us how it works?” (Wait to see what happens. If no one answers, just continue.)

“How does it work? Well, I’m a student just like yourself but I’ve already taken this course and done well. I’m going to be helping all of you do better in this course. To do so, I’m going to be here sitting in your class and will organize at least three hours a week of group study for all of you (five hours during the short session). During those study hours, we will review and practice the material that the professor presents in the class. I can tell you that this is a challenging course! But you can do well if you apply yourself, work hard and come to my study sessions.”

Step (3) Give statistics about API.

**Tips:** Be sure to give statistics using the terms ‘on average’ so students don’t think you are guaranteeing them a better grade.

**Possible Statements:** “Since API has been around so long we know

that it works. In fact, we know that on average, students who attend API sessions score one letter higher than those who don't. So, it is very much in your interest to come to my sessions."

Step (4) Tell the student how you will help them.

**Tips:** Include details such as test review, practice quizzes, etc. Give some examples from the course.

**Possible Statements:** "I am not a teacher. I am not going to lecture to you," "I am also a student," "I will keep in touch with the professor," "We can learn from each other."

Step (5) Give some motivational information to encourage students to attend.

**Possible Statements:** "I know that all of you are busy, busy, busy, so you will tell me that you don't have time to come to my sessions. I also know that API is not a 'time waster' but a real 'time saver.' If you attend my sessions you will save time in studying, in doing your homework and in everything involved in preparing for this course, because you will have a safe place to come and practice your work and prepare for your exams. Remember: I am not a teacher, but a student like yourself who has taken this course before, so I will not be grading you, but helping you do better. Come!!"

Step (6) Conduct the survey.

**Tips:** Walk around the room as you give out the surveys and continue doing so while students fill them out, to make sure that they are filling surveys out correctly. Make sure that students write the word 'FREE' in the boxes on the grid. Otherwise you will not know afterwards if their X's mean that they are busy or free. Make sure that students mark more than 3 hours.

**Possible Statements:** "Please fill out the survey on both sides. You will see that some hours are blocked out. Those are the hours that I have classes and therefore cannot hold sessions! Make sure that you write the word 'FREE' in the boxes on the grid on the back to indicate those are free hours of yours. Please give me the maximum number of hours that you are free, so I can accommodate as many of you as possible!"

Step (7) Ask for questions.

**Possible Statements:** "I'm sure that some of you have questions.

Here's your chance. But if you can't think of any, please send me an e-mail (point to the board) with at least one question. Thanks so much. I look forward to being in this class with you this semester and helping you succeed. Good luck!"

### Other Suggestions:

1. Use humor.
2. Speak clearly and make eye contact.

## 3.11 Chapter Activity

**Activity 3.3.** *The following is a cloze exercise about your responsibilities as a tutor. Fill in the blanks.*

1. Try to ..... with your professor before the semester begins. Give him/her the introductory ..... that is in your folder. Ask him/her for a ..... minutes during the first or ..... class to have students ..... the survey.
2. Also, try to meet with your ..... on a regular basis. Ask him/her for any old ..... or worksheets that you can ..... during your sessions.
3. You must ..... the weekly ..... hour training meetings. During these meetings, you will receive ..... training, and be able to ..... your concerns and .....
4. Become a mentor/..... to your students. Try to establish a friendly ..... with them. For example, if students ..... a session, it is nice to tell them that you ..... them and encourage them to ..... Be careful, however, close personal friendships or ..... relationships are ..... appropriate. If you are attracted to someone attending your ....., hold your feelings until the ..... of the semester.

5. *Be careful: Never show ..... to any one student for ..... reason. It will make other students ..... that you are unfair and they will ..... attending your sessions.*
6. *Keep your ..... organized and ..... for weekly check ups that are done on ..... before our meetings.*
7. *Fill out your planning log ..... your sessions, making a ..... plan and using it as a tool. If you e-mail it to your ....., it can serve to ..... your attendance. Send us a ..... as well, please!*
8. *Make sure that ..... sign in for each ..... session. We need this ..... for collecting ..... (A sample attendance form can be found in your ....., and in figure ..... of this manual).*
9. *Create a flier early in the ..... This too will promote .....*
10. *Attendance at our ..... meetings on ..... is required. No ..... absences are permitted. Keep in mind that you are being ..... for attending them. If you must be ....., you must get permission ..... of time, unless you have an ..... In that case, you must ..... us as ..... as possible. More than ..... unexcused absences will be held against you and affect your .....*
11. *Attend ..... classes. It will help you to ..... the needs of your ..... Once again, you must ..... us and get ..... for any absence from class.*
12. *Be sure to get the ..... from the professor certifying your attendance in the class and ..... it to our ..... meeting.*
13. *Attend all of your ....., notifying us about any ..... or time change, both temporary and ..... We ..... to know where you are.*
14. *..... take your folder home. Instead, just ..... the pages you need and then ..... them later. The ..... in your folder is extremely ..... for us. We can't afford to ..... it.*
15. *A ..... in which no ..... attend, cannot be ..... as a regular session. You will have to ..... it up!*

16. *Sessions must be held ..... Our students need ..... practice, not massed practice. This means that it is not ..... to have a 3 hour session one day and then not have any more until the ..... week.*
17. *Write a short ..... for our website. It will ..... to the ‘flavor’ of your photograph and give ..... a better ..... of who you are!*
18. *Please feel free to ..... to one of us, if you ..... any problems that you don’t want to ..... with the group at a meeting. We are both here to make API a ..... experience for you so that you will want to continue as an API .....*





# Chapter 4

## Improving API Sessions



### 4.1 Improving and Assuring Attendance at your Sessions

Attendance at your API sessions is voluntary. Students will not come unless they feel motivated to come. You, as their tutor, have to encourage, convince, cajole,

and urge your students to attend your sessions. Our students are extremely busy. Many attend school full time, work full time and also have family responsibilities. They need to realize that attending your sessions will SAVE THEM TIME, not waste their time and will help them improve their grade in the course. Also, without attendance at your sessions, you will not be a successful tutor. Your professor and the API staff can assist you in improving your attendance at sessions.

**Activity 4.1.** *Together with one or two other tutors, create a list below of the things you, as a tutor, can do that will assure and improve attendance at your sessions. When you have finished, check your list with our list. (If possible, at least one experienced tutor should be included in each group. We have started you off with number 1.)*

1. *Based on your first day survey, try to pick hours that many, if not most students can attend.*
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_

**Activity 4.2.** *The following is a list of strategies that can help to improve attendance. Some of them are best performed by you, some by your professor, others by the API staff, others by any combination of the three. Next to each strategy, place a **T** if it is best performed by the tutor, a **P** if best performed by the professor, an **S** if best performed by the API staff. Place more than one letter next to a strategy if it can be performed by 2 or 3 of the above. We have done item 1 for you as an example:*

1. Choose the best time for the session based on students and your schedule keeping in mind that the times just before and after a class are best: (T).
2. Announce API in class: \_\_\_\_\_
3. Provide old tests and worksheets: \_\_\_\_\_
4. Announce the plan for each session in advance by flier, e-mail, verbally and/or by Blackboard: \_\_\_\_\_
5. Get to know the students in your class. Learn their names. Become their friend: \_\_\_\_\_
6. Visit a session sometimes: \_\_\_\_\_
7. Give extra credit for frequent attendance at sessions: \_\_\_\_\_
8. Keep in continuous contact with professors: \_\_\_\_\_
9. Include the tutor in Blackboard accounts as an assistant: \_\_\_\_\_
10. Create an e-mail group and e-mail students frequently with session previews, session times and rooms and any changes that you have put into place: \_\_\_\_\_
11. Provide technical assistance: \_\_\_\_\_
12. Ask about missing students. E-mail them: \_\_\_\_\_
13. Provide material for sessions from previous tutors' handouts: \_\_\_\_\_
14. Involve the professor by meeting with him/her: \_\_\_\_\_
15. Include strategies for improving attendance in the training sessions: \_\_\_\_\_
16. Give partial reports to the professor: \_\_\_\_\_

17. *If the professor uses group work in class, become an assistant:* \_\_\_\_\_
18. *When a student who is a ‘regular’ at your sessions, misses one or two, ask him/her why there was a change:* \_\_\_\_\_
19. *Ask the professor for copies of old tests and/or a list of important topics:*  
\_\_\_\_\_
20. *Be prepared with a session plan for each of your sessions:* \_\_\_\_\_
21. *Ask tutors if they have concerns or problems that they wish to discuss privately:* \_\_\_\_\_
22. *Be flexible: If students are concerned about a particular problem they are having, put aside your lesson plan for part of the time:* \_\_\_\_\_
23. *If students compliment you on your session, tell them to tell their classmates:*  
\_\_\_\_\_
24. *If your class has a lab, circulate, helping individuals or groups of students. This will help you to get to know them. Remind them if they have questions or concerns about your sessions.* \_\_\_\_\_
25. \_\_\_\_\_ : \_\_\_\_\_
26. \_\_\_\_\_ : \_\_\_\_\_
27. \_\_\_\_\_ : \_\_\_\_\_
28. \_\_\_\_\_ : \_\_\_\_\_
29. \_\_\_\_\_ : \_\_\_\_\_

## 4.2 Strategies During Sessions

**Activity 4.3.** Use some or all of the following strategies to improve students' learning. Then see if you can explain why this is a worthwhile strategy:

1. When time runs out in a session, suggest that your students complete what they are doing at home and e-mail their results to you.

Why? .....

2. When you give students an activity, always give them a time limit. You can always extend it, if need be.

Why? .....

3. Provide 'waiting time,' by asking "Who has the answer?" rather than "What is the answer?"

Why? .....

4. Ask "how" questions as well as "what" questions.

Why? .....

5. When one student gives an answer or solves a problem ask the others, "Do you agree?"

Why? .....

6. Ask your students to create a quiz in groups. Then have them switch their quizzes and answer them putting their questions and answers on the board to share them.

Why? .....

**Activity 4.4.** Review Activity: The following cloze is designed to review API recommended behaviors and expressions.

1. Compliment \_\_\_\_\_, criticize \_\_\_\_\_.

2. Always try to find something \_\_\_\_\_ to say to a student, even if you have good reason to criticize. Example: To a student you know is not doing the homework, "I realize you are having trouble doing the homework, but I know you want to succeed in this course, so I would urge you to at least try."

3. Avoid using the word “easy,” because \_\_\_\_\_. Instead use the following words, “This problem is \_\_\_\_\_, it just may take you some time to figure it out.”
4. When criticizing a student use “I” messages, not “\_\_\_\_\_” messages. Example: “I am surprised that you are not doing well. Can you help me figure out why?”
5. Always be kind. \_\_\_\_\_ how you would like to be \_\_\_\_\_.
6. Think of how certain people were \_\_\_\_\_ to you when you were learning something \_\_\_\_\_ and model yourself after them.
7. When a student is discouraged and says, “I just can’t do it,” or “I don’t get it,” remember to add the magic 3 letter word \_\_\_\_\_ that can encourage and give hope.
8. Remember that in order to \_\_\_\_\_, we must sometimes fail first and learn from our \_\_\_\_\_.
9. Practice being \_\_\_\_\_. Count to 10, 20, even 100 when you feel yourself losing patience with a student who is having \_\_\_\_\_.

**Activity 4.5.** *Statements that Encourage (or Discourage) Students: Label the following statements as ‘heuristic’ - (H) statements that encourage learning or ‘discouraging’ (D) statements. If you label it D, tell how you would improve or change it.*

- (a) “You are always late (absent). With this attitude, I don’t think you’ll ever succeed.” Answer: \_\_\_\_\_.  
Improvement? \_\_\_\_\_.
- (b) “You’re doing well. But I know you can do better.” Answer: \_\_\_\_\_.  
Improvement? \_\_\_\_\_.
- (c) “This problem is so easy. I can’t believe you can’t get it.” Answer: \_\_\_\_\_.  
Improvement? \_\_\_\_\_.

- (d) *“This course is challenging. It involves a lot of work, but it is ‘doable.’ I know. I struggled and completed it successfully.” Answer: \_\_\_\_\_.*  
*Improvement? \_\_\_\_\_.*
- (e) *“Why didn’t you come to my session yesterday? You’re never going to succeed if you don’t change your ways.” Answer: \_\_\_\_\_.*  
*Improvement? \_\_\_\_\_.*
- (f) *“I’m sorry you couldn’t make it to my session. I’m sure you had a good reason. I do hope that you will come to the next one. Will you?” Answer: \_\_\_\_\_.*  
*Improvement? \_\_\_\_\_.*
- (g) *“I agree with you. The reason you are doing poorly is because the professor is bad and doesn’t teach anything.” Answer: \_\_\_\_\_.*  
*Improvement? \_\_\_\_\_.*
- (h) *“I realize you’re unhappy with the professor but my job is to help you do better. Come to my sessions and you may be surprised how much better you can do!” Answer: \_\_\_\_\_.*  
*Improvement? \_\_\_\_\_.*
- (i) *(After explaining a problem) You say: “Do you understand?” Answer: \_\_\_\_\_.*  
*Improvement? \_\_\_\_\_.*
- (j) *“You are just an impossible student and will never succeed. I know it. The only hope you have is that you are good looking.” Answer: \_\_\_\_\_.*  
*Improvement? \_\_\_\_\_.*

**Activity 4.6.** For the following students’ statements put in your best response:

- (a) Student says, “I can’t do it.” You say: \_\_\_\_\_.
- (b) Student says, “No one in my family is good in math. That’s why I can’t do this problem.” You say: \_\_\_\_\_.
- (c) Student says, “I’m working 50 hours a week besides going to school full time. That’s why I can’t come to your sessions.” You say, \_\_\_\_\_.
- (d) Student says, “The teacher doesn’t like me. That’s why I’m failing.” You say: \_\_\_\_\_.

- (e) Student says, "It's not what you know, it's who you know that decides who succeeds." You say: \_\_\_\_\_.
- (f) Student says: "I know how to do this problem. I just can't explain it." You say: \_\_\_\_\_.
- (g) Student says: "The teacher is so bad. That's why I can't learn this stuff. Don't you agree?" You say: \_\_\_\_\_.
- (h) Student says: "I haven't been going to class because I know that you can teach me what I need to learn to pass." You say: \_\_\_\_\_.
- (i) Student says: "I just want to pass this class. I don't care if I get a D." You say: \_\_\_\_\_.
- (j) Student says: \_\_\_\_\_. You say: \_\_\_\_\_.
- (k) Student says: \_\_\_\_\_. You say: \_\_\_\_\_.
- (l) Student says: \_\_\_\_\_. You say: \_\_\_\_\_.

**Activity 4.7.** As a model student, one who has mastered how to be a good student, you know what is involved in excelling in college. The cloze exercise below is just intended as a review for you, not for your students. You could also ask your students to fill it out and review the answers with them.

**In class:**

- (a) Pay \_\_\_\_\_. Being awake and aware is \_\_\_\_\_.
- (b) Ask \_\_\_\_\_. This is a sign that you are thinking.
- (c) Take \_\_\_\_\_. Writing can \_\_\_\_\_ your learning.
- (d) Avoid \_\_\_\_\_ conversations.
- (e) Turn off your \_\_\_\_\_. Socializing can wait.
- (f) Be on \_\_\_\_\_. Lateness means you might be missing \_\_\_\_\_ information.



- (g) Don't \_\_\_\_\_ class unless you have a \_\_\_\_\_ reason. If you must, get the \_\_\_\_\_ you missed from a \_\_\_\_\_ student. Sit in \_\_\_\_\_ of the class. Doing so will help you pay \_\_\_\_\_.
- (h) If possible, get to \_\_\_\_\_ the professor. Visit him/her during office \_\_\_\_\_ if you have questions or concerns.
- (i) While taking notes try to \_\_\_\_\_ what is important so you know what you should \_\_\_\_\_.
- (j) If you become distracted during \_\_\_\_\_, have to \_\_\_\_\_ for a few minutes, or don't understand something, make a \_\_\_\_\_ of it in your notes by putting a \_\_\_\_\_ mark or leaving a \_\_\_\_\_ space.

**Outside of class:**

- (a) Do the \_\_\_\_\_ even if it will not be \_\_\_\_\_. It will provide you with good \_\_\_\_\_ and preparation for \_\_\_\_\_.
- (b) Review your \_\_\_\_\_ after class. Fill in what you \_\_\_\_\_.
- (c) Get enough \_\_\_\_\_. If you are tired, you will not be able to fully \_\_\_\_\_ attention.
- (d) Eat \_\_\_\_\_. If you are hungry, you will not be able to \_\_\_\_\_ attention in class.
- (e) Plan your \_\_\_\_\_ time, splitting it up into \_\_\_\_\_ units.
- (f) Get \_\_\_\_\_ if you are having trouble.
- (g) Study the \_\_\_\_\_. It will give you a good \_\_\_\_\_ of the course and what is \_\_\_\_\_ to learn.
- (h) Do the \_\_\_\_\_. Don't assume that lectures will be \_\_\_\_\_ to do well.
- (i) Commit to extra \_\_\_\_\_ sessions besides doing homework.
- (j) Attend \_\_\_\_\_ study sessions if they are available. These are not just meant for failing \_\_\_\_\_.

- (k) Go on the \_\_\_\_\_ for additional \_\_\_\_\_. The Internet has a lot of valuable \_\_\_\_\_.
- (l) Limit \_\_\_\_\_. It is good for \_\_\_\_\_ but is also a \_\_\_\_\_ time waster.
- (m) Be \_\_\_\_\_ of your \_\_\_\_\_ in the class at all times. This will help you to know how you are \_\_\_\_\_ in the course and if you need \_\_\_\_\_ help or if you should \_\_\_\_\_ the course.
- (n) Try to \_\_\_\_\_ what you are studying to \_\_\_\_\_ courses and to what you already \_\_\_\_\_. This will provide you with a reference for what you are \_\_\_\_\_ and how it fits into what you already know and will help you \_\_\_\_\_ the material.
- (o) \_\_\_\_\_ yourself when studying to see if you really know the \_\_\_\_\_. This will help you know what you need to \_\_\_\_\_ and if you need \_\_\_\_\_ help.
- (p) If there is no API support for the course, consider studying with other \_\_\_\_\_. Group work can be extremely \_\_\_\_\_.

### 4.3 The Recalcitrant or Difficult Student

#### Dealing with a recalcitrant student [12]

1. Praise publicly, criticize privately.
2. Stay cool and calm when talking with a student. Above all be polite. Realize that you are the ‘model’ student and need to set an example.
3. Separate yourself - observe the student’s behavior and try not to become personally involved.
4. Use “I” messages rather than “you” messages.  
Example: “I was surprised by your behavior. Can you explain it?” Not: “You are behaving terribly.”
5. Be factual. Ask questions before you draw conclusions. Try to understand where the behavior is coming from.

6. In a nice way assert your authority. Remember you are the tutor and the leader of your sessions. For example, you might say, “I understand that you are upset, but my job is to help you learn the material and succeed in this course and that is why I am asking you to (you choose): (1) Put away your cell phone; (2) Stop texting; (3) Come on time; (4) Participate with the others.
7. Remember that many of our students are still adolescents and still acting out a rebellion against the authority figures in their lives so you should not behave in a ‘parental’ fashion. Instead adopt the role of a coach or concerned friend.  
For example: Say: “I am concerned about your behavior.” Not: “Stop doing that. It’s driving me crazy!”
8. Keep confidences. Never share information of a personal nature that is told to you with other students.
9. Listen carefully before saying anything. Showing a student that you are willing and interested in hearing what s/he has to say goes a long way to solving problems.

**Activity 4.8.** *The following are examples of situations that have occurred in API sessions or in classes that can make your life as a tutor a challenge. For each of them, role play the event with one of you taking the role of the recalcitrant student, the other the tutor. Then switch roles. Afterwards, together describe the best way or ways of handling this situation. Use the spaces available for notes.*

- (a) *You are presenting mathematics problems to the group. You divide the problems amongst the students and assign each of them a problem to do on the board. The first student you ask, says, “You do it. Do it now! Don’t ask me to do it.” What do you do?*

---

---

---

---

- (b) *A student stays after the session. You know this student is having particular difficulty with the course and is struggling. She says, “I don’t want to come to these sessions. I want private tutoring and I will pay you. How much do you*

want?” What do you do?

---

---

---

---

- (c) A woman student (you are a male) is the only one to come to your session. You sit next to her as you review a test with her. She is clearly having trouble. She says, “I need much more help. Can you come to my house to help me?” She continues, “If you do, I will make it up to you.” (As she says this, she touches your leg under the desk.) What do you do?

---

---

---

---

- (d) You ask your students to work in groups. You ask one student to sit with another. He says, “I won’t work with him.” You take the student aside, outside the classroom and ask him why and he responds, “I don’t like Chinese, Japanese, Jews, Arabs, Blacks, Hispanics (pick one).” What do you do? Describe how you might handle this situation?

---

---

---

---

- (e) You divide your students into groups. One student says, “I don’t work in groups.” What do you do?

---

---

---

---

- (f) Students during the session start complaining about their professor. For example, “Our professor doesn’t know how to teach. He makes things complicated.” Then they follow up saying, “Our tutor - you - are way better than our professor. Why can’t you teach the course instead?” What do you say? (written by our API tutors - Yassine Wardei, Debajyoti Paul and MD Hafizur Rahman)

---

---

---

---

## 4.4 Using Visual Tools

Visual tools such as charts, graphs, tables, diagrams, models and timelines are extremely useful during API sessions. They can help our students see the relationships between ideas or data in an orderly, more organized and simpler fashion and thereby help them draw needed conclusions. This will in turn help them remember what they need to know. For the most part, you, the API tutor, will not be required and should not need to create these visual displays but instead can ‘borrow’ them from other places such as: your classroom notes, your textbooks, the Web, old tests and quizzes as well as many other sources. Then you should adapt them.

**One caution:** DO NOT GIVE STUDENTS ANY OF THESE VISUAL DISPLAYS WITHOUT REMOVING INFORMATION SO THAT INSTEAD OF STARING AT THEM, THEY ARE FORCED TO FILL THEM IN, DRAW SOMETHING, ACTIVELY ENGAGE WITH THEIR CONTENT. IN OTHER WORDS: MAKE THE TABLE, CHART OR GRAPH YOU USE INTO A PUZZLE THAT REQUIRES ACTIVE LEARNING. THAT IS THE NAME OF OUR API ‘GAME!’ WE WANT STUDENTS TO BECOME ACTIVE LEARNERS WHO ARE ENGAGED AND ACTIVELY SEEKING INFORMATION, TESTING THEIR KNOWLEDGE AND UNDERSTANDING ALL THE TIME!

**A table** is any visual way of representing ideas or numbers in rows and columns. It doesn’t have to draw conclusions and often is just a list of data or ideas.

**A chart** is a visual display of information. It helps us to see relationships, understand trends as well as similarities and differences. It does not have to use numbers, but can use ideas instead. Sometimes the information for a chart may be taken from a table. There are many different types of charts that you may have already come across: pie charts, bar charts, time series line charts, scatter

plots, box plots as well as others. An example of a bar chart and the corresponding table of values is given in figure 4.1 (Source: LaGuardia Community College Institutional Profile 2011).

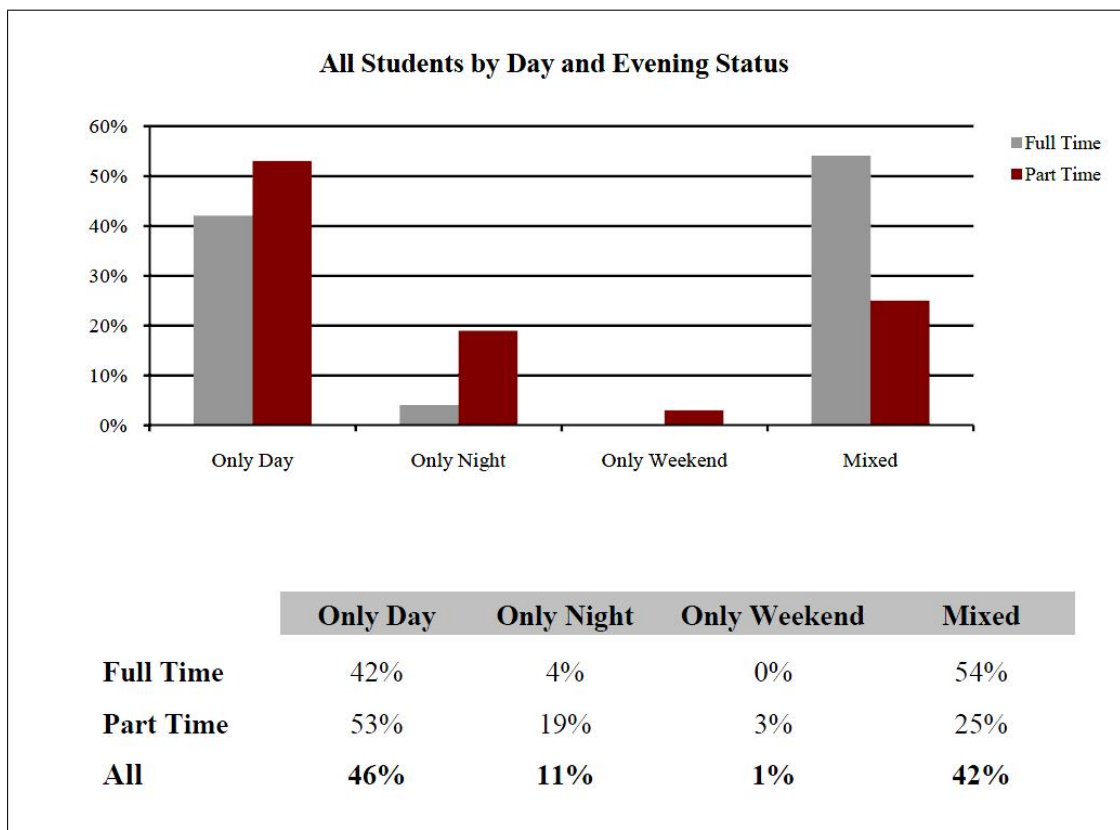


FIGURE 4.1: LaGuardia College Credit Students by Day and Evening Fall 2010

**Activity 4.9.** For this activity use the bar chart in figure 4.1.

1. What information do you get from this chart?

Answer: \_\_\_\_\_.

2. List three (3) conclusions you can draw from it:

(a) \_\_\_\_\_.

(b) \_\_\_\_\_.

(c) \_\_\_\_\_.

3. What was the most surprising information you drew from it?

Answer: \_\_\_\_\_.

**Models and Diagrams** are particularly useful for the science areas.

**Activity 4.10.** Photocopy a diagram from one of your textbooks or from the Web and remove all the labels. Require the students to fill in the labels. (Alternatively you might be able to use the models found in the science study lab and have students test themselves on them.) Make enough copies for all of your students. Example: (see Figure 4.2).

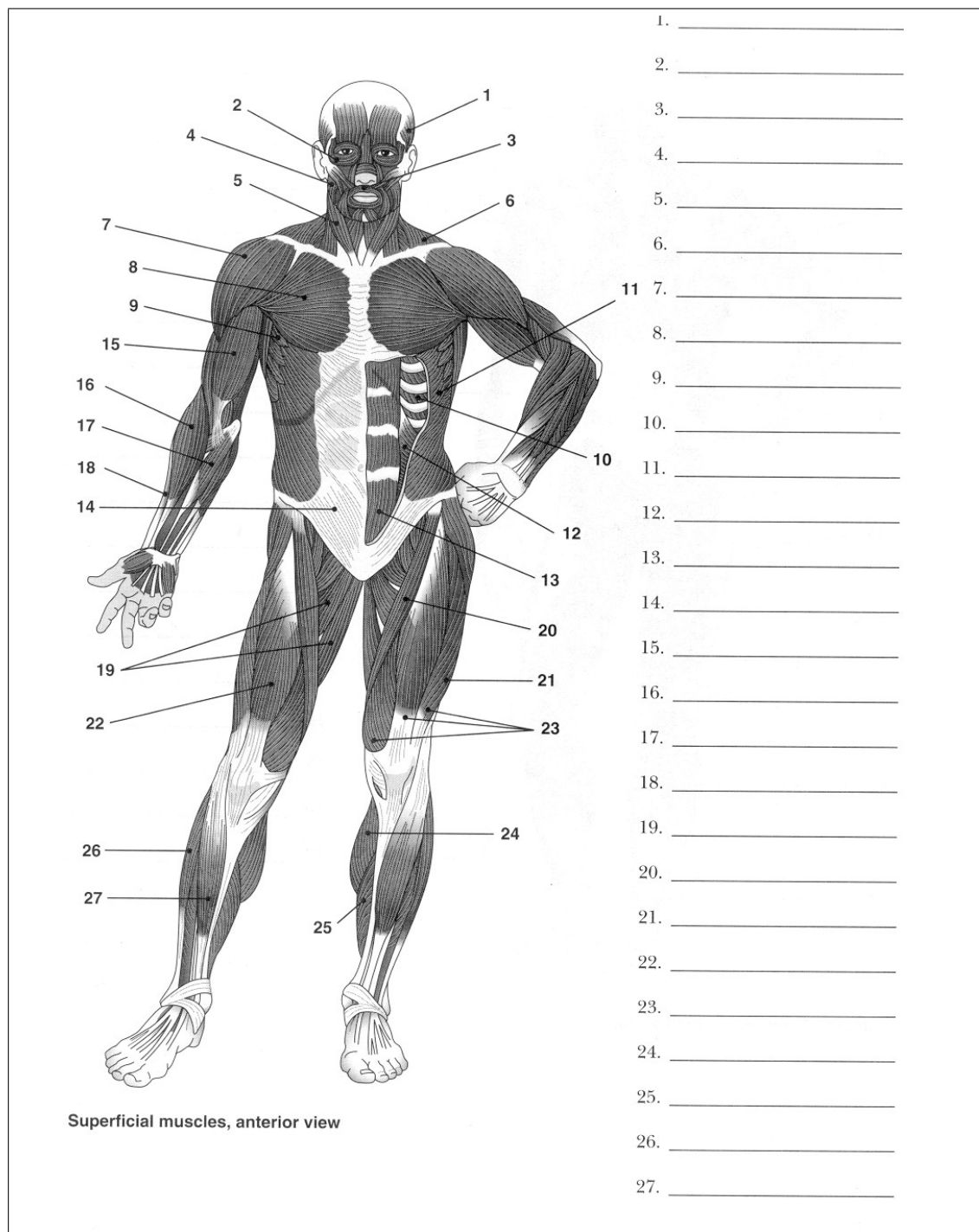


FIGURE 4.2: Muscles Diagram

**Time Lines** unlabeled or partially labeled time lines are a good way of testing students in subjects where chronological knowledge is important, such as history. Other types of pictorial or spatial figures, such as Venn diagrams that show relationships between ideas and issues can be used in subjects such as statistics, sociology, and science. In any case, these diagrams should be partially unlabeled with few if any answers, so that students are forced to learn actively by processing the information in them. An example of a time line is given in figure 4.3 (Source: LaGuardia Community College Institutional Profile 2011).

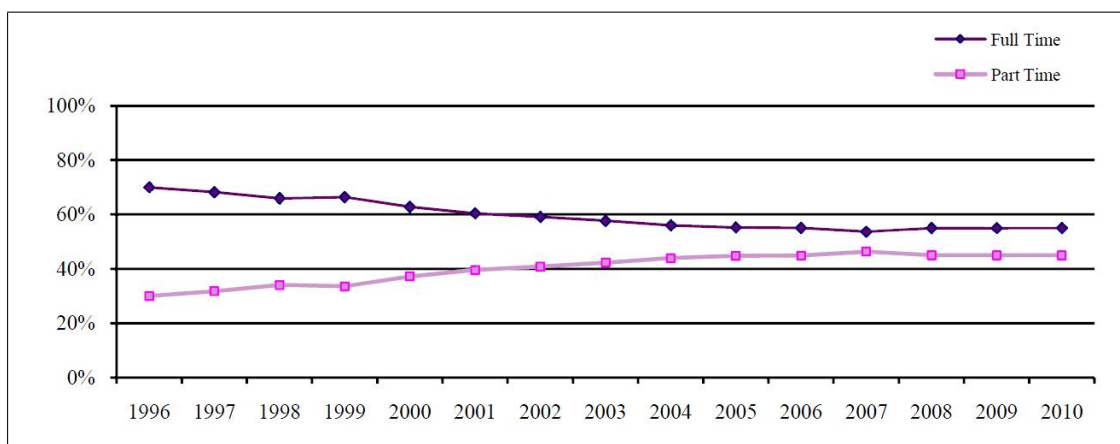


FIGURE 4.3: LaGuardia College Credit Students by Full-time and Part-time Status 1996-2010

**Activity 4.11.** *See if you can fill in the blanks below as a self-test without looking back:*

1. *There are different types of visual displays described in this section. They are:*

\_\_\_\_\_

\_\_\_\_\_

2. *A table is any way of displaying \_\_\_\_\_ in rows and \_\_\_\_\_ without drawing any conclusions.*

3. *A chart is a visual \_\_\_\_\_ that helps us to see relationships. List three types of charts:*

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

4. *List below one type of visual display you might use in your tutoring:*

*The subject you tutor: (or use API) \_\_\_\_\_.*

*Your preferred type of visual display: \_\_\_\_\_.*

*Explanation: \_\_\_\_\_.*

*Create a visual display on a separate piece of paper as an example.*



## 4.5 The Practice or Informal Quiz

An informal quiz is any type of simple test that you make up yourself or photocopy from another source. These quizzes are probably the most useful activities for API sessions if done correctly because (a) they provide students with important feedback as to what they know and what they must still learn, and (b) they give you, the tutor, an opportunity to see what students know and what they still have to master. However, if they are to be effective, they must be given without answers. Only after students have completed working on these quizzes (in groups if possible) and shared their answers with each other on the board, should you provide answers that were not known by the group or were answered incorrectly. After students get over their frustration over your not providing them with answers, they will come to love them. They quickly see that they are taking tests that help them learn and that are non-punitive, because they won't be penalized for getting a low grade or failing. Note: The best compliment a tutor received from a student after taking a class exam: "After your practice quiz, the real one was a 'piece of cake.'" "

### Rules for Effective, Informal Quizzes:

1. Never provide students with answers when presenting the quiz. Some students may be annoyed but "hang tough." When they complain, you can say, "I will not be taking the test for you. I want to see how much you can do on your own."
2. Avoid multiple choice questions. They are extremely difficult and time consuming to write and only test the ability to recognize information, not produce it.
3. Prepare your practice quiz ahead of time and be ready with copies.
4. If your professor will supply them, use old tests or quizzes for practice.
5. The textbook and the Web are excellent sources for practice or informal quizzes.

**Activity 4.12.** *Read the following statements that have been attributed to the world famous scientist, Albert Einstein. Answer the following question for each*

*statement: (a) Rephrase the quotation in your own words. (b) “What does this statement mean? Explain.”*

***Statements attributed to Albert Einstein:***

1. “YOU NEVER TRULY UNDERSTAND SOMETHING UNTIL YOU CAN EXPLAIN IT TO YOUR GRANDMOTHER.”

Acceptable answer: \_\_\_\_\_  
\_\_\_\_\_.

2. “WE DON’T KNOW ONE PERCENT OF A MILLIONTH OF ANYTHING.”

Acceptable answer: \_\_\_\_\_  
\_\_\_\_\_.

3. “IF WE KNEW WHAT WE WERE DOING, IT WOULD NOT BE CALLED RESEARCH, WOULD IT?”

Acceptable answer: \_\_\_\_\_  
\_\_\_\_\_.

4. “IT’S NOT THAT I’M SO SMART, IT’S JUST THAT I STAY WITH PROBLEMS LONGER.”

Acceptable answer: \_\_\_\_\_  
\_\_\_\_\_.

## 4.6 Cloze Exercises

If you have been working in this manual, you are already familiar with cloze exercises. They involve taking a text, blanking out some important words and then requiring students to fill in the blanks. They are extremely useful because: (1) they are not terribly time consuming to develop, (2) they genuinely test knowledge of course material, and (3) students enjoy working on them because of their puzzle-like nature. Again, it is important to develop your cloze exercises before your session and have copies.

**Activity 4.13.** *Refer to the following paragraph:*

***What is API?***

*Academic Peer Instruction is a variant of Supplemental Instruction (SI), a nationally recognized non-remedial peer tutoring program that targets “high risk” or*

*difficult courses instead of failing students. SI is presently in place in almost 1000 institutions of higher learning nationally and abroad. This tutoring program has been assisting students at LaGuardia since the spring semester of 1993.*

- 1. Construct a handout that will serve as a cloze exercise based on the above paragraph about API (also found in section 1.1).*
- 2. Complete the cloze without looking at the original. What did you learn about the cloze process from developing this cloze and then completing it?*

## 4.7 Incomplete Outlines

The goal of using an incomplete outline is to help students see the relationship and organizational pattern of information given in either lectures or in textbooks. As students become more independent, you can gradually remove more and more of the information until students can produce their own outlines. There are many types of outlines.

**Activity 4.14.** *Needed: A handout of an incomplete outline you've prepared.*

*Instructions: Hand out the outline that you've prepared with missing parts and require your students to complete it in groups. Allow them at first to use their notes or the textbook. Or, as a practice quiz, you might require them to complete the outline without any access to notes or books.*

*Example of an incomplete outline: Biology: The Cell Cycle*

*a \_\_\_\_\_*

*i G1*

*ii \_\_\_\_\_*

*iii G2*

*b \_\_\_\_\_*

*i Prophase*

*ii \_\_\_\_\_*

*iii Metaphase*

*iv* \_\_\_\_\_

*v Telophase*

## 4.8 Using the Web

It is a given that the Web can provide an almost inexhaustible supply of materials and possible handouts to use with your students. Cautions: (1) Make sure that the material you copy is relevant and important for your students to learn and know, and (2) Be sure to adapt it so that the material becomes a handout with questions or activities that require your students to do something.

**Activity 4.15.** *Find a website that has materials and/or activities that you might use with your students.*

*Include it here:* \_\_\_\_\_. *Why did you choose it?* \_\_\_\_\_?

*How might you modify it to use it with your students?*

\_\_\_\_\_

**Activity 4.16.** *(To be used in an API session with your students) Ask your students to research the Web alone or with a partner, looking for websites that can help them master the material they need to learn for the course. Have them share what they found with the other students, explaining why they chose it and why they think it would help them master course material.*

## 4.9 Using the Syllabus

Many students do not realize that the syllabus can be an extremely valuable tool. They often ignore it and never look at it after the first day when it is given out in class. Because they do not use it, they miss valuable information that will help them pass the course. It is therefore extremely important to “showcase” the syllabus with an activity as explained below to make sure that students have read and studied it.

**Activity 4.17.** *Together with your group, list any information a syllabus may contain:*

1. \_\_\_\_\_.
2. \_\_\_\_\_.
3. \_\_\_\_\_.
4. \_\_\_\_\_.
5. \_\_\_\_\_.
6. \_\_\_\_\_.
7. \_\_\_\_\_.
8. \_\_\_\_\_.
9. \_\_\_\_\_.

**Activity 4.18. Sample Activity** *(To be used with your students in a session at the beginning of the semester.) Photocopy the syllabus of the course you are tutoring or have students bring theirs to your session. Give students a few minutes to study it and discuss it in groups. Then have them complete a cloze or answer some questions based on their syllabus. (Students can be allowed access to the syllabus or be required to do it from memory!) Then have students put their answers on the board. If you are using a cloze, count as correct any answers that approximate the meanings of the original. However, dates of exams, papers due, homework due must be exact and correct. Students then should score their own answers as to the percentage correct they received. You can then use their work to start a discussion as to what they learned from this activity.*

**Activity 4.19.** *A sample precalculus syllabus is provided in figures 4.4-4.7. Together with your group, in the space below construct a 10 question informal quiz that you might use to serve as a way of getting students to understand the important information that is found in this syllabus. Be sure to include questions that cover all six (6) levels of Bloom's taxonomy as found in section 2.4.1.*

- Question 1: \_\_\_\_\_ (level \_\_\_\_\_)
- Question 2: \_\_\_\_\_ (level \_\_\_\_\_)
- Question 3: \_\_\_\_\_ (level \_\_\_\_\_)

*Question 4:* \_\_\_\_\_ (*level* \_\_\_\_\_)

*Question 5:* \_\_\_\_\_ (*level* \_\_\_\_\_)

*Question 6:* \_\_\_\_\_ (*level* \_\_\_\_\_)

*Question 7:* \_\_\_\_\_ (*level* \_\_\_\_\_)

*Question 8:* \_\_\_\_\_ (*level* \_\_\_\_\_)

*Question 9:* \_\_\_\_\_ (*level* \_\_\_\_\_)

*Question 10:* \_\_\_\_\_ (*level* \_\_\_\_\_)

**LAGUARDIA COMMUNITY COLLEGE  
CITY UNIVERSITY OF NEW YORK  
MATHEMATICS, ENGINEERING & COMPUTER SCIENCE DEPARTMENT**

**MAT 200: PRECALCULUS – EDUCO VERSION**

**4 credits, 5 hours**

**4 classroom hours, 1 lab hour**

Catalog Description

4 credits, 5 hours (4 classroom hours, 1 lab hour)

Prerequisite: MAT 115

This course is intended as a preparation for the study of Calculus. Functions and their graphs will be analyzed theoretically within a framework that emphasizes their appearances in applied settings. Particular attention will be placed on polynomial, exponential, logarithmic, and trigonometric models. The use of graphing utilities as analytical tools will be emphasized (MAPLE and Graphing Calculator).

Textbook

**PRE-CALCULUS, 7 Edition**, by Man M. Sharma, Natalia Mosina, and Chaitan Gupta; EDUCO International, Inc. 2011; [www.educosoft.com](http://www.educosoft.com)

Evaluation

1) In-Class Exams (two)	35%
2) Final Project (Maple)	10%
3) Homework/Lab (online + hand in)	10%
4) Quizzes	10%
5) Final Exam	35%

Remarks About Evaluation

- 1.) Several homework/laboratory writing assignments will be collected during the semester. Each assignment should be submitted by its due date. Assignments turned in late may not receive full credit. In addition, quizzes on homework/lab material may be given at various times during the term.
- 2.) Each of the three examinations (two midterms and final) will be given in class.
- 3.) The project should be submitted by its due date (some time, TBA, before the Final exam week). Papers turned in late may not receive full credit. The project should provide a more complete analysis of material covered in class; it should contain both algebraic and graphical analysis where appropriate.
- 4.) Students must register at [www.educosoft.com](http://www.educosoft.com) for online assignments and tutorials.

**Suggested Plan of Lessons**

Revised: September, 2011 (Coordinator of Pre-Calculus: N. Mosina)

- 1

FIGURE 4.4: Syllabus Sample Page 1

Weeks/Lessons	Sections	Pg.	Topic(s)	Suggested Exercises
Week 1 Lessons 1 – 5  (brief review of basics)	1.1	1	Real numbers. Intervals on the number line.	Pg. 9: #81 – 103 (odd), 107 – 119 (odd)
	1.2	10	Absolute value.	Pg. 16: #51 – 81 (odd), 95 – 115 (odd)
	3.5	174	Inequalities (to be revisited later, see Week 3)	Pg. 185: #1-21 (odd), 81 – 91 (odd)
	2.5	116	Distance and slope	Pg. 123: #1, 7, 11, 21 – 29 (odd), 53 – 71 (odd)
	4.1	223	Equations of lines	Pg. 229: #1 – 29 (odd), 37
	9.2 (see also 4.2B )	516	Circles (completing the square – 4.2B)	Pg. 521: 1 – 11 (odd), 17 – 33 (odd)
	Lab (short introductory session about Maple software). Written HW is assigned.			
Week 2 Lessons 6 – 10	2.2	76	Functions	Pg. 83: #1 – 9 (odd), 13 – 21 (odd), 31 – 53 (odd), 85
	2.3	87	Functions. Domain and Range.	Pg. 95: #1 – 35 (odd), 39, 51, 53, 54, 55, 57 – 60 (all)
	3.6	186	Domain of functions (revisited)	Pg. 189: #1 – 27 (odd), 31 – 34 (all)
	2.4	97	Graphical representation of functions	Pg. 112: #1 – 21 (odd), 29 – 53 (odd), 55 – 63 (odd), 71 - 95(odd), 96, 97.
	2.6	126	Operations on functions	Pg. 131: #1 -29(odd), 37, 38, 41, 45, 53
Lab. Written HW/Lab is assigned.				
Week 3 Lessons 11 – 15	4.2	231	Graphing techniques and Properties of functions. Average rate of change.	Pg. 248: # 35 – 67 (odd), 83, 87, 103 – 111 (odd), 117, 118, 122
	4.3 (+ 3.1B)	250	Graphs of quadratic functions. Zeros of quadratic functions.	Pg. 257: # 3, 5, 9, 13, 29, 43 – 53 (odd), 63, 65, 69 Pg. 157: # 19 – 37 (odd)
	4.4 (selected examples)	259	Functions in Applications. Concentrate of Linear and Quadratic modeling (illustrate in Lab)	
	3.5 (revisited)	174	Inequalities involving quadratic functions	Pg. 185: 23 – 31 (all), 97, 99
Lab. Written HW/Lab is assigned. In-class Quiz is recommended.				
Week 4 Lessons 16 – 20	4.5	266	Graphs of polynomial functions	Pg. 270: #1 – 7 (discuss the behavior of given functions), 27, 29.
	4.6	271	Graphs of rational functions. Asymptotes	Pg. 277: #1-19 (odd), 49
	App. C	App 60	Slant asymptotes	
	Review for Exam #1			
Written HW is assigned.				
Week 5 Lessons 21 - 25	Exam #1			
	5.1	285	Inverse functions	Pg. 292: #1 – 43 (odd), 54
	Lab			
Week 6 Lessons 26 - 30	5.2	293	Exponential functions. Simple exponential equations.	Pg. 300: #1 – 43 (odd), 58, 61
	5.3	302	Logarithmic functions	Pg. 308: #1 – 73 (odd), 83 – 97 (odd)
	5.4	310	Properties of logarithms	Pg. 317: #1 – 89 (odd), 90, 102
	5.5	319	Exponential and logarithmic equations	Pg. 326: #1 – 55 (odd)
Lab. Written HW/Lab is assigned.				

FIGURE 4.5: Syllabus Sample Page 2



Week 7 Lessons 31 – 35	5.6	328	Growth and Decay functions. Applications.	Pg. 270: #1 – 7 (discuss the behavior of given functions), 27, 29.
	5.6 (continue)	328	Compound Interest.	Pg. 277: #1-19 (odd), 49
	Review for Exam #2			
	Lab. Written HW/Lab is assigned.			
Week 8 Lessons 36 – 40	Exam #2			
	6.1(connect with 6.4A)	343	Unit Circle and measures of angles	Pg. 350: #1 – 13 (odd), 21 – 49 (odd), 60
	6.2	352	Circular functions of angles	Pg. 359: #1 – 15 (odd), 21 – 43 (odd), 53, 57
	6.3	361	Evaluating circular (trig.) functions	Pg. 367: #1 – 33 (odd), 55 – 63 (odd)
Week 9 Lessons 41 – 45	6.4	369	Trigonometric functions. Applications.	Pg. 377: #1 – 25 (odd), 37, 45, 55, 57 – 63 (odd), 77, 79
	6.5	380	Graphs of the Sine and Cosine functions	Pg. 392: #1 – 33(odd), 38 – 44 (all), 51 – 59 (odd)
	6.6	396	Graphs of other circular (trig.) functions.	Pg. 405: #1-17 (odd)
	7.1	413	Simplifying trigonometric expressions.	Pg. 419: #1 – 59 (odd)
Week 10 Lessons 46 – 50	Quiz on chapter 6 is recommended			
	7.2	420	Proving trigonometric identities.	Pg. 424: #1 – 39 (odd)
	7.3	425	Sum and difference formulas	Pg. 433: #1 – 21 (odd)
	7.4	436	Double and half angle formulas	Pg. 443: #1 – 21 (odd), 39 – 43 (odd), 69, 77
Week 11 Lessons 51 – 55	7.5	446	Inverse Trigonometric Functions	Pg. 453: #1 – 25 (odd), 41 – 53 (odd)
	Lab. <b>Final project</b> is distributed. Due in 2 weeks.			
	7.6	455	Trigonometric equations I	Pg. 466: #1 – 39(odd)
	7.6 continue	455	Trigonometric equations II	
Week 12	8.1	473	The Law of Sines	Pg. 473: #1 – 21 (odd), 31, 33
	Lab. Work on Final Project.			
	8.1 continue	473	The Law of Sines	
	8.2	479	The Law of Cosines.	Pg. 481: #1-21 (odd), 27, 29, 33
Selected topics – instructor's choice (optional, if time permits)				
Review for the Departmental Final Exam				
Departmental Final Examination (cumulative).				

**Laboratory attendance is mandatory**

All students must submit at least 6 written hw/lab assignments and a final project.

**Suggested Lab Hour Topics**

- Domain and Range
- Functions and their properties, Rate of Change
- Transformations of Graphs
- Polynomial Functions: Curve Fitting, Modeling
- Inverse Functions
- Exponential and Logarithmic Functions
- Trigonometric Functions

**General Comments**

Revised: September, 2011 (Coordinator of Pre-Calculus: N. Mosina)

- 3

FIGURE 4.6: Syllabus Sample Page 3

- 1.) The specific topics listed in the above lesson plan and the principles of evaluation listed above are both subject to minor modification by the instructor.
- 2.) The instructor will assign homework relevant to the topics in the course. Each student is strongly encouraged to complete these assignments to the best of his or her ability consistently throughout the semester. Generally speaking, the student that follows this recommendation will maximize his or her understanding of the subject matter and achieve optimal performance on examinations.

#### Instructional Objectives

During the semester, the instructor will aim to:

- 1.) Reinforce and further explore functional patterns as naturally occurring phenomena.
- 2.) Investigate verbal, numerical, graphical, and symbolic representations of functions.
- 3.) Enable students to critically analyze linear, power, and exponential models both algebraically and graphically.
- 4.) Examine rigid and non-rigid transformations both experimentally and analytically.
- 5.) Introduce and explore the inverse function concept and to relate inverse functions to the corresponding original functions.
- 6.) Introduce logarithmic functions as inverses of the exponential functions and to analyze the theoretical consequences of this inverse relationship.
- 7.) Introduce the trigonometric functions and their inverses, present a comprehensive treatment of the sine and cosine functions, and explore applications of them.
- 8.) Facilitate the students' use of graphing utilities as analytical tools.
- 9.) Promote the development of written analyses of mathematical concepts.

#### Performance Objectives

At the end of the semester, the student will be able to:

- 1.) Interpret functional patterns and to create functions describing them.
- 2.) Convert one representation of a function to another.
- 3.) Form linear, power, and exponential models and to apply them in the solution of real-world problems.
- 4.) Employ rigid and non-rigid transformations algebraically and graphically as problem solving tools.
- 5.) Compute inverse functions and to use their properties to obtain more precise algebraic and graphical information about the corresponding original functions.
- 6.) Solve exponential and logarithmic equations and to graph exponential and logarithmic functions both in abstract forms and in the applications of exponential models.
- 7.) Perform computations involving the trigonometric functions and their inverses in both theoretical and applied settings and to graph the sine and cosine functions.
- 8.) Use graphing utilities as aids in the solution of problems/
- 9.) Complete written reports on various topics in the Pre-Calculus subject area.

FIGURE 4.7: Syllabus Sample Page 4

## 4.10 Reading the Textbook

The formula ‘Reading = Translation + Conversation’ is an extremely helpful tool for helping students read, comprehend and remember what they have read.

Formula explained:

Translation = Putting the text into your own words, paraphrasing it.

Conversation = Talking and commenting about what you have read with yourself or with another person.

Many students avoid the textbook. They don’t read it because \_\_\_\_\_.

One of your roles as an API tutor is to show your students how helpful the textbook can be and how to read it.

**Activity 4.20.** *(Sample activity to be used with your students)*

(1) Tell your students to bring their course textbook. (Even if you don’t have enough copies, you should have enough so they can share. Alternatively, you can photocopy a page or two from the textbook and bring these pages to your session.)

(2) Pick one chapter or use the pages you’ve photocopied. Using the formula ‘Reading = Translation + Conversation,’ have students in groups take turns reading a paragraph out loud and then ‘translating’ it, writing what they’ve read in their own words paraphrasing the content. Then they need to write a brief comment - their ‘conversation’ about this paragraph. Walk around the room to see what and how each group is doing. Ask groups who have done well to put their work on the board to share. Ask the members of the group to explain why and what they wrote. Try to get through as many paragraphs as you can during the session. Explain that although this process is slow it assures that they will remember what they have read and their reading won’t have been a waste of time. Also, they will have notes on what they have read for future use!

**Activity 4.21.** *(Sample Activity)* For this activity use the following excerpt from the textbook Thinking Critically by John Chaffee [5].

1. In groups of 2 or 3, take notes on this textbook excerpt using this formula as a guide (Reading = Translation + Conversation).
2. Be prepared to share your notes.

3. *We will also discuss what you learned from this activity and how you might use it with your students.*

### ***A Roadmap to Your Mind***

*This book is designed to help you become an educated thinker by providing you with many opportunities to use your mind in ways that will strengthen and elevate your thinking abilities. Many of these abilities-such as working toward your goals, solving problems, or making intelligent decisions-will already be familiar to you. Others, such as understanding the conceptualizing process or constructing rigorous extended arguments, will be less so. But whatever your degree of familiarity, and no matter what your level of expertise, you can always improve your thinking abilities, and doing so will enrich your life in countless ways. Here is a brief preview of the thinking abilities you will be studying-the very same abilities that you will be using to think with as you study them!*

- *Establishing and achieving your goals*
- *Becoming an intelligent and effective decision-maker*
- *Becoming a confident and productive creative thinker*
- *Becoming an independent, informed, and open-minded critical thinker*
- *Learning to analyze and discuss complex, controversial ideas in an organized fashion*
- *Becoming a powerful and successful problem solver*
- *Becoming familiar with the perceptual “lenses” through which you view the world, and understanding the way these lenses shape and influence your entire experience*
- *Learning to develop informed well-supported beliefs and achieve authentic knowledge of important issues*
- *Learning to critically analyze information and images presented in the media, the Internet, and popular culture*
- *Developing your ability to understand and use language in an effective way in order to express your ideas clearly and coherently*

- *Learning to form and apply concepts in order to understand the world in a clear, sophisticated way*
- *Developing your ability to relate and organize concepts in complex thinking patterns*
- *Learning to think critically about ethical issues and moral beliefs*
- *Learning to construct logically valid and compelling arguments to support your point of view*
- *Learning to evaluate the soundness of deductive and inductive arguments and detect illogical ways of thinking (“fallacies”)*
- *Developing your ability to make enlightened choices and work toward creating a meaningful and fulfilling life*

*Of course, these abilities do not operate in isolation from one another; instead, they work together in complex patterns and relationships. So, for example, in the remainder of this first chapter, we’re going to explore three core areas that are central to being an accomplished thinker and living a successful, fulfilling life:*

- *Establishing and achieving your goals*
- *Becoming an intelligent and effective decision-maker*
- *Becoming a confident and productive creative thinker*

*Achieving your full potential in these areas involves all of the other thinking abilities that you will be studying in this book. In this chapter you will be laying the foundation for achieving your goals, making effective decisions, and learning to think creatively. However, your abilities in these areas will continue to grow as you develop and practice the full range of your thinking capabilities included in this text.*

## 4.11 The Modeling Technique

While many of us think the term “modeling” belongs to a profession where tall, very thin women and/or handsome men parade about in expensive clothing in front

of photographers, the use of the term “modeling” has a very different meaning in education.

**Definition:** The art of talking through the solution of a lengthy and challenging problem so that others can understand the process that was used to arrive at the correct answer.

**Its Use and Value:** Often students do not understand or know the many and varied steps that are required to solve a problem. It is not enough for them to see another student or a tutor write the steps on the board or just tell them how to solve it. They need MORE! This is where modeling a solution comes in.

**How to model:** To model the solution to a problem, you talk continuously OUT LOUD as you write on the board showing and telling the steps, one by one, that you used to arrive at the answer or solution. It is important not to leave out ANY STEPS, even the smallest and simplest ones. For example, if a student is solving a problem at the board, s/he should talk, explaining how s/he proceeded. The following are words that might be used:

1. “First I ..... because .....”
2. “Then I ..... because .....”
3. “Then I ..... because .....”

The student should continue with these steps and explanations until s/he comes to the complete solution of the problem.

**Advantages of this technique** Often when a difficult problem is hurriedly written on the board, students may follow only a small part of the solution and not understand exactly how to solve it on their own. Having someone model the steps for them, gives them the opportunity to fully see what is going on in the solver’s brain as s/he works. Nothing is left to the imagination. All of the steps are talked about and explained.

**Activity 4.22.** *Together with a partner pick a simple problem. Then take turns modeling your problem’s solutions out loud. Remember you cannot leave out any steps and must verbalize each one of them. You may be asked to demonstrate at the board.*

## 4.12 Jeopardy and Other Games

Jeopardy and other competitive games can be very useful techniques that encourage learning in your subject area, making it fun as well, because competition is added and winning is the prize! Most of our students are familiar with games and once they become engaged in one of them they will surprise you and become very active participants. While small prizes are useful, students will engage in games without them. Just provide points instead, as in a sporting event. You will see that the competitive instinct kicks in and most students will become very active.

**Playing Jeopardy** Before attempting to play Jeopardy with your students, it is a good idea to watch the TV show, which is on every evening after the news. Do not try to duplicate the show's many levels of questions containing different points and different subject areas. It is enough to have a long list of questions that are pertinent and important for students to be able to answer to do well in your course.

1. **Preparation:** In order to play Jeopardy, you will need a long list of questions in your subject area. You do not have to write them yourself. Instead you can find them in many different sources - old tests, quizzes, textbooks, manuals, websites. It is also possible as preparation to ask students to submit questions via e-mail. In this way you can collect a long list of questions that will test knowledge in your subject area.
2. **Playing the game:**
  - (a) Divide your students into 3 or 4 teams with no more than 4-5 students in each group. (You may need to add teams or enlarge team size to accommodate the number of students you have.)
  - (b) Appoint a time keeper and a score keeper. The score keeper needs to sit near the board to post scores. The time keeper needs a watch or a cell-phone to keep accurate times.
  - (c) Give each team a few minutes to meet and choose a team name and a team captain. The score keeper should then put these team names on the board.

- (d) Each team then puts its team name on a piece of paper and places it in a box or hat and either the time keeper or the score keeper picks these papers. The order of play is then decided fairly.
- (e) You, the tutor, then read the first question. The first team's members are given a chance to answer it. Use a strict time limit (30-45 seconds is a good range). Before answering the question, the team should huddle and decide on an answer. Only the team captain is permitted to give the answer. No other answers should be allowed. If the first team cannot answer this question, it then goes to the second team. If they cannot answer it, it goes to the next team and so on. The team that answers the question correctly gets a point and the opportunity to be the first one to answer the next question.
- (f) Play continues until time is over or all of the questions have been answered. Of course the team that wins, is the one that accumulates the most points!

**Activity 4.23. *Playing Jeopardy:*** *In groups 2 or 3 using this manual as a guide, each group should write 10 questions about API. Put each question on a separate piece of paper or on separate index cards which will be provided, putting the answer to it on the back. Place each of your questions in the box at the front of the room. Following the rules outlined, we will play and personally experience playing Jeopardy.*

**Analysis:** *After playing, go back to the groups and answer the following questions:*

1. *How useful is this game for your own subject area?*
2. *Would you try playing it? Why or why not?*
3. *What are the advantages of a game like this?*
4. *What are its disadvantages?*

**Other games:** There are many other games similar to Jeopardy that you are encouraged to try with your students. If you do so, be sure to share them at a meeting with the other tutors or via e-mail.



**Puzzles:** Giving students puzzles to solve is an extremely worthwhile tool to increase learning. They are particularly helpful as warm-up activities - used at the beginning of a session to get students in the mood for learning and reviewing what they have already learned. Most students enjoy solving them and will become active learners when presented with one or more! The website: <http://puzzlemaker.discoveryeducation.com> will permit you to create your own puzzles using information relevant to your own subject matter. Examples using information about API created with the help of this website can be found on our back cover and in chapter 7. Try solving some of them. In addition, word puzzles can be fun and intellectually challenging. Einstein's puzzle is an example. Variations of this riddle appear on the Web from time to time. (Einstein's puzzle can be found in chapter 7. Try to solve it).

## 4.13 Warm-up Activities

**Definition:** Merriam Webster dictionary defines "warm-up" as "the act of warming up: a preparatory activity or procedure." In education a warm-up activity is designed to get students in a class or study session involved in a learning activity from the very moment they enter the room.

**A question:** From your experience, how much time do most teachers spend on non-learning activities at the beginning of a class hour that are essential, for example, taking attendance, making announcements, returning homework, that take away serious time from learning time? 5 minutes? 10 minutes? 15 minutes? Estimates are that as much as 15 minutes can be lost in these "administrative" or "organizational" activities. This is time that could be used for learning!

**Description:** A warm-up activity is one that is designed to be done to "fill" the time that is ordinarily taken with administrative or organizational activities. It is a short written task, e.g. a problem, a puzzle, a definition, a question or a few questions that are given to students as they enter the room. Students can work on these activities alone, can be encouraged to work in groups and can be permitted to use their notes or not.

**Activity 4.24.** *The following is a warm-up activity that could be used for one of our training sessions: "In groups of 2 or 3, write 7 concepts or vocabulary words that are important for an API tutor to know and understand." Put them on the*

*board together with their definitions. Be sure to identify yourselves. You have 7 minutes to complete this activity. You may use your manuals if you wish!*

*Write your words and definitions here and then put them on the board:*

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

**Activity 4.25.** *Form groups of 2,3 or 4 and write one or two warm-up activities you might use with your students. These activities must of course be subject specific so your groups should be tutors who are tutoring the same course! (Your activity can be simply one or two problems to solve, formulas to write or terms to define.)*

*Write your activity (activities) here:*

**Activity 1:** Course: \_\_\_\_\_

**Activity 2:** Course: \_\_\_\_\_

## 4.14 Chapter Activity

**Activity 4.26.** Based on what you have learned in this chapter complete the following informal quiz based on the levels of questioning in Bloom's Taxonomy:

*Level I question: Knowledge: What is the title of this chapter?* \_\_\_\_\_

*Level II question: Understanding: Explain the difference between an activity such as Jeopardy and a methodology or technique such as Modeling:*

---

---

---

*Level III question: Applying: Select one activity from this chapter such as the informal quiz, Jeopardy or other games, and explain how you might use it in one of your sessions.*

---

---

---

*Level IV question: Analyzing: Based on the information you've learned in this chapter, compare and contrast API with another tutoring program you are familiar with. You may use a Venn diagram or a chart.*

---

---

---

*Level V question: Evaluating: Evaluate the methodologies and activities presented in this chapter. Which one do you think will be most useful to you? Why?*

---

---

---

*Level VI question: Creating: Think about how API as you know it might be improved? What changes would you suggest? (This question might best be answered by experienced tutors.)*

---

---

---



# Chapter 5

## API Forms



## 5.1 Planning Log

The planning log form shown in figure 5.1 is used by the API tutor to prepare for each tutoring session. It is found on the back side of the API Session Attendance Sheet (figure 5.2). Follow the directions on the top of the form when preparing for your session.

**Plan for the Session**

Use this page to write a plan for your session.

Please include **DETAILS** (e.g. problems, questions, pages from a book, etc).

**STAPLE** to this page any **HANDOUT** you have prepared for the session or copies of any material you plan to use (e.g. lecture notes).

The plan **MUST** be done **BEFORE** each session.

-----

FIGURE 5.1: API Planning Log



## 5.3 Class Attendance Sheet

The Class Attendance Sheet is shown in figure 5.3. Fill in the information for the classes you attended and ask your professor to sign. If a test is scheduled please write TEST and ask the professor to sign. Submit the completed form during the following meeting or drop it in the API mailbox in E115.

**API CLASS ATTENDANCE\***

**WEEK #**    \_\_\_\_\_

**Tutor's name:**    \_\_\_\_\_

<u>DAY OF CLASS</u>	<u>DATE OF CLASS</u>	<u>TIME OF CLASS</u>	<u>FACULTY SIGNATURE</u>
Monday	____ / ____ / ____		
Tuesday	____ / ____ / ____		
Wednesday	____ / ____ / ____		
Thursday	____ / ____ / ____		
Friday	____ / ____ / ____		
Saturday	____ / ____ / ____		

\* Please hand in during the first meeting after the end of the week.

FIGURE 5.3: Class Attendance Sheet



## 5.4 Session Cancellation Sheet

The API Session Cancellation Sheet is shown in figure 5.4. Use this form any time you have to cancel a session, change the session time, change session room or if you have to leave early due to no students attending. Post the form on the door so that it is clearly visible. Make sure to also notify the API office.

**ACADEMIC PEER INSTRUCTION**

**Session Change / Cancellation**

**Tutor:** \_\_\_\_\_

**Class:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Time:** \_\_\_\_\_

**Reason** (please complete one only)

- Session is cancelled because \_\_\_\_\_  
Next session will be \_\_\_\_\_
- We have moved to room \_\_\_\_\_
- I left at \_\_\_\_\_ since no students showed up.

FIGURE 5.4: API Session Cancellation Sheet

## 5.5 Beginning of Semester Checklist

The API Beginning of Semester Checklist is shown in figure 5.5

**API – Beginning of Semester Tutor Checklist**

**Prior to the semester:**

- \_\_\_\_ completed the hiring package.
- \_\_\_\_ selected the class I will be tutoring.
- \_\_\_\_ submitted my schedule grid for copies.
- \_\_\_\_ met with the professor.
- \_\_\_\_ know the time and location for my targeted course.

**First Week List:**

- \_\_\_\_ had my speech and done the survey.
- \_\_\_\_ set up my schedule.
- \_\_\_\_ submitted my session hours to Andi.
- \_\_\_\_ have room (s) assigned for my tutoring sessions.
- \_\_\_\_ notified students about my tutoring schedule.

**Second Week List:**

- \_\_\_\_ started my tutoring sessions.
- \_\_\_\_ prepared a flier and submitted for copies.
- \_\_\_\_ set up an e-mail group for my students.

FIGURE 5.5: API Beginning of Semester Checklist

## 5.6 Beginning of Semester Survey

The API Beginning of Semester Survey is shown in figures 5.6 and 5.7. Conduct the survey at the beginning of the semester when you introduce yourself to the class. Once you have the survey results use them to decide about the best times to hold your tutoring sessions.

***Academic Peer Instruction  
(API) Survey***

Course: \_\_\_\_\_

Date: \_\_\_\_\_

Tutor's Name: \_\_\_\_\_

E-mail: \_\_\_\_\_

Welcome to API !  
Weekly Academic Peer Instruction sessions will be offered for all students enrolled in this course. This questionnaire will help us pick the best times to schedule these sessions.

**DIRECTIONS:** Please fill out this questionnaire whether you think you will use the service or not. Thank you!

1) On a scale of 1 to 5 (1=NOT INTERESTED; 5=VERY INTERESTED) please indicate your interest in attending Academic Peer Instruction sessions for this course.

a) 1

b) 2

c) 3

d) 4

e) 5

2) Have you taken or attempted to take this course before?

a) Yes

b) No

3) Have you ever attended an API session (in this or other classes)?

a) Yes

b) No

(Please fill out the grid on the other side) → →

FIGURE 5.6: API Beginning of Semester Survey Page 1

### API SESSION SURVEY

Student Name \_\_\_\_\_ Email \_\_\_\_\_

Please write **"FREE"** in the empty boxes when you could attend the API tutoring sessions.

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00 to 9:00						
9:15 to 10:15						
10:30 to 11:30	CLASS		CLASS			
11:45 to 12:45	CLASS		CLASS			
1:00 to 2:00						
2:15 to 3:15		///////// ///////// /////////		///////// ///////// /////////		
3:25 to 4:25	///////// ///////// /////////	///////// ///////// /////////	///////// ///////// /////////	///////// ///////// /////////	///////// ///////// /////////	
4:35 to 5:35	///////// ///////// /////////	///////// ///////// /////////	///////// ///////// /////////	///////// ///////// /////////	///////// ///////// /////////	
5:45 to 6:45		///////// ///////// /////////		///////// ///////// /////////		
6:55 to 7:55		///////// ///////// /////////		///////// ///////// /////////		
8:05 to 9:05						
9:15 to 10:15						

FIGURE 5.7: API Beginning of Semester Survey Page 2 Example

## 5.7 End of Semester Survey

The API End of Semester Survey is shown in figure 5.8. This survey should be given to all students at the end of the semester regardless of whether or not they attended your sessions. Designate a student from the class to conduct the survey. Ask the student to distribute and collect ALL surveys. The student should then bring all completed surveys to the API office, E115.

Fall 2, 2011-12

**ACADEMIC PEER INSTRUCTION  
POST-SEMESTER QUESTIONNAIRE**

---

1. The API study sessions that I attended were for the following course:

Course	Section	Name of Course

2. I **did not attend** any API study session because:

- a. I had classes when they were scheduled.
- b. I had to go to work.
- c. I did not feel I need them.
- d. I prefer studying alone.
- e. Other \_\_\_\_\_

3. I **attended** approximately \_\_\_\_\_ API sessions and I found them to be:

a. Excellent      b. Good      c. Average      d. Poor

**Comments**

---



---



---



---



---



---



---



---



---



---

FIGURE 5.8: API End of Semester Survey Page 1

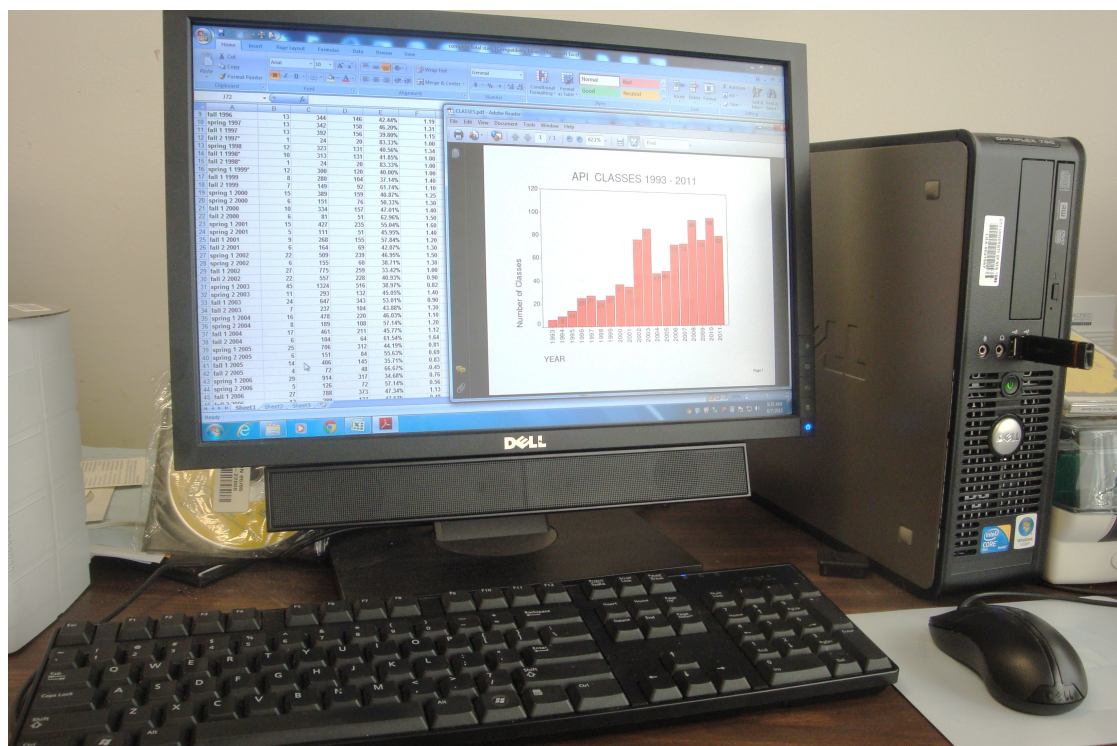
The API Observation Form is shown in figure 5.9. Complete this form during your peer observation. Meet with the tutor you observed and discuss your observation. Ask the tutor to include his/her response and return the form to E115.

FIGURE 5.9: API Observation Form

FIGURE 5.9: API Observation Form

# Chapter 6

## Statistics



## 6.1 Total Statistics 1993 - 2011

Grade difference API attendees vs Non Attendees: **0.98**

Total number of classes: **956**

Number of students who attended 3 or more sessions: **11,307**

Percentage of students who attended 3 or more sessions: **42.39%**

Number of tutors hired (Many of them for more then one semester): **350+**

Number of participating teachers: **200+**

Percentage of API attendees who rated the API sessions as “Good” or “Excellent”:  
**89.89%**

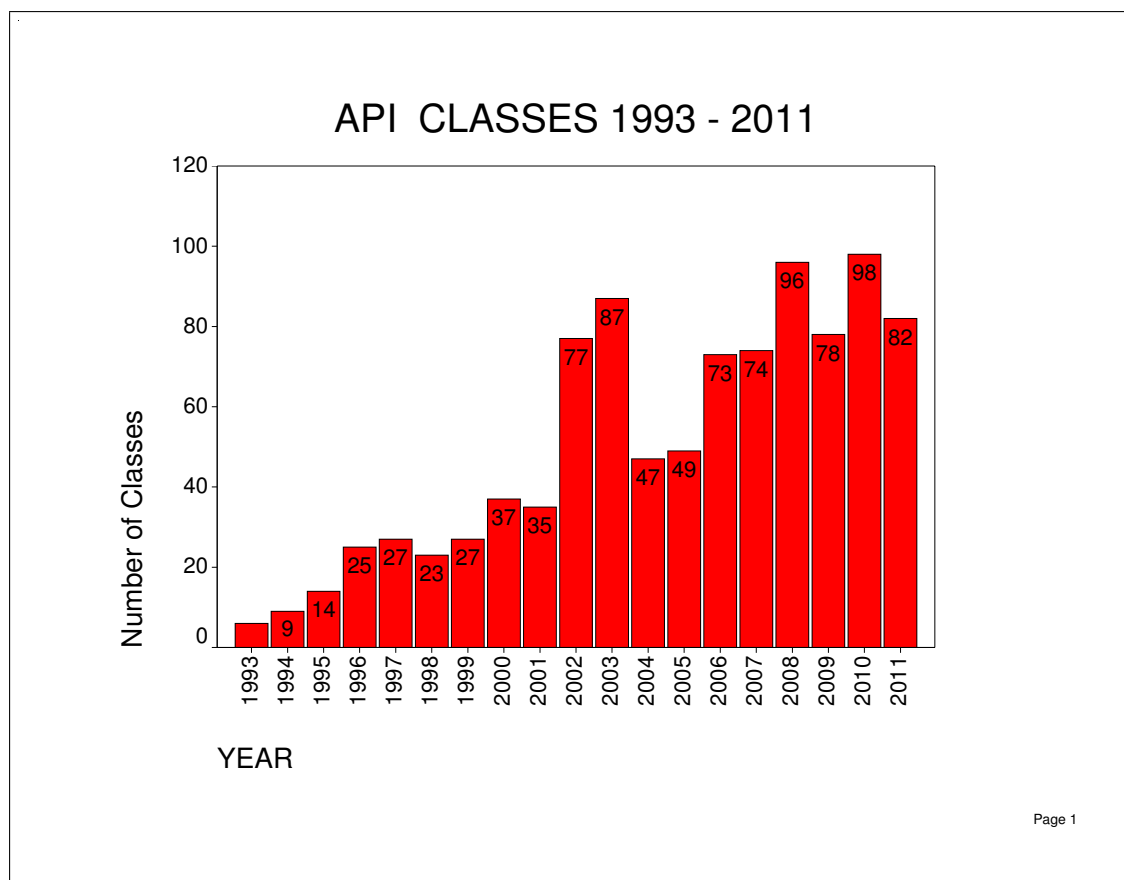


FIGURE 6.1: API Number of Classes by Year



## 6.2 Sample Statistics. Spring 1, 2010

### 6.2.1 Grade Difference

TABLE 6.1: Grade Comparison Spring 1, 2010 Part 1

Course	Section	API*	NON API**	Difference API vs. Non API
Psychology	SSY 101.1953	3.67	2.62	1.05
Psychology	SSY 101.1935	2.73	2.79	-0.06
Chemistry	SCC 210.1766	3.86	2.63	1.23
Chemistry	SCC 210.1767	3.32	2.67	0.65
Chemistry	SCC 210.1768	2.88	2.35	0.53
Chemistry	SCC 210.1769	3.08	1.81	1.27
Pre-Calculus	MAT 200.1622	2.69	0.25	2.44
Pre-Calculus	MAT 200.1632	1.97	0.00	1.97
Calculus 1	MAT 201.1648	2.58	2.84	-0.26
English	ENG 101.0782	2.23	2.25	-0.02
English	ENG 101.0784	3.77	1.90	1.87
Biology	SCB 203.1727	2.11	0.00	2.11
Biology	SCB 203.1725	1.88	1.75	0.13
Biology	SCB 203.1729	2.36	0.00	2.36
Business	BTM 101.0054	2.66	1.94	0.72
Biology	SCB 203.1723	1.84	1.80	0.04
Psychology	SSY 101.1923	2.28	1.62	0.66
Psychology	SSY 101.1938	3.00	1.18	1.82
Psychology	SSY 101.1948	3.14	1.35	1.79
Psychology	SSY 101.1950	2.89	1.15	1.74
Philosophy	HUP 101.6053	3.25	2.56	0.69
Psychology	SSY 101.1944	2.85	1.07	1.78
Calculus 2	MAT 202.6234	2.81	2.20	0.61
Chemistry	SCC 210.1770	2.67	1.51	1.16

TABLE 6.2: Grade Comparison Spring 1, 2010 Part 2

Course	Section	API*	NON API**	Difference API vs. Non API
Pre-Calculus	MAT 200.1623	1.50	1.807	-0.30
Calculus 1	MAT 201.6227	2.88	2.12	0.76
Accounting 2	BTA 112.0015	2.99	2.85	0.14
Pre-Calculus	MAT 200.1630	1.93	1.00	0.93
Accounting 2	BTA 112.0020	3.44	2.56	0.88
Biology	SCC 210.6370	2.60	2.29	0.31
Biology	SCC 210.6371	1.95	2.61	-0.66
Pre-Calculus	MAT 200.1628	1.63	1.16	0.47
Biology	SCB 203.6332	2.06	1.63	0.43
Biology	SCB 203.6333	1.38	0.96	0.42
Pre-Calculus	MAT 200.1635	2.96	2.12	0.84
Calculus 1	MAT 201.1646	1.67	1.11	0.56
Technical Math	MAT 241.1669	1.94	1.24	0.70
Calculus 1	MAT 201.1647	0.81	0.40	0.41
Chemistry	SCC 210.1755	*2.30	0.67	1.63
Chemistry	SCC 210.1756	2.56	0.71	1.85
Calculus 1	MAT 201.1645	3.50	2.57	0.93
			Overall	0.89

## 6.2.2 Attendance Summary

TABLE 6.3: API Session Attendance Spring 1, 2010 Part 1

Course	Section	Number of students in class	Students who attended 3 or more sessions	Percentage Participation
Psychology	SSY 101.1953	36	14	39%
Psychology	SSY 101.1935	38	11	29%
Chemistry	SCC 210.1766	20	5	25%
Chemistry	SCC 210.1767	22	13	59%
Chemistry	SCC 210.1768	22	5	23%
Chemistry	SCC 210.1769	24	8	33%
Pre-Calculus	MAT 200.1622	28	18	64%
Pre-Calculus	MAT 200.1632	27	22	81%
Calculus 1	MAT 201.1648	30	12	40%
English	ENG 101.0782	27	3	11%
English	ENG 101.0784	26	3	12%
Biology	SCB 203.1727	28	21	75%
Biology	SCB 203.1725	30	6	20%
Biology	SCB 203.1729	25	15	60%
Business	BTM 101.0054	33	12	36%
Biology	SCB 203.1723	24	19	79%
Psychology	SSY 101.1923	37	6	16%
Psychology	SSY 101.1938	36	10	28%
Psychology	SSY 101.1948	29	5	17%
Psychology	SSY 101.1950	37	12	32%
Philosophy	HUP 101.6053	31	4	13%
Psychology	SSY 101.1944	35	11	31%
Calculus 2	MAT 202.6234	31	21	68%
Chemistry	SCC 210.1770	18	3	17%
Pre-Calculus	MAT 200.1623	26	8	31%
Calculus 1	MAT 201.6227	31	11	35%
Accounting 2	BTA 112.0015	38	17	45%
Pre-Calculus	MAT 200.1630	29	10	34%

TABLE 6.4: API Session Attendance Spring 1, 2010 Part 2

Course	Section	Number of students in class	Students who attended 3 or more sessions	Percentage Participation
Accounting 2	BTA 112.0020	39	7	18%
Biology	SCC 210.6370	24	10	42%
Biology	SCC 210.6371	24	8	33%
Pre-Calculus	MAT 200.1628	25	10	40%
Biology	SCB 203.6332	29	19	66%
Biology	SCB 203.6333	28	13	46%
Pre-Calculus	MAT 200.1635	32	7	22%
Calculus 1	MAT 201.1646	28	9	32%
Technical Math	MAT 241.1669	29	5	17%
Calculus 1	MAT 201.1647	29	14	48%
Chemistry	SCC 210.1755	24	8	33%
Chemistry	SCC 210.1756	23	9	39%
Calculus 1	MAT 201.1645	31	8	26%
	Totals	1183	432	37%

### 6.2.3 Satisfaction Ratings

TABLE 6.5: API Session Satisfaction Ratings, 2010 Part 1

Course	Section	Students Surveyed	Percentage 'good' or 'excellent' ratings
Psychology	SSY 101.1953	26	83%
Chemistry	SCC 210.1767-8-9	63	96%
Pre-Calculus	MAT 200.1622	12	88%
Pre-Calculus	MAT 200.1632	14	100%
Calculus 1	MAT 201.1648	22	100%
English	ENG 101.0784	15	100%
Biology	SCB 203.1728-9	29	96%
Business	BTM 101.0054	10	100%
Biology	SCB 203.1723	16	100%
Psychology	SSY 101.1938	75	100%
Philosophy	HUP 101.6053	20	100%
Psychology	SSY 101.1944	20	100%
Calculus 2	MAT 202.6234	25	93%
Chemistry	SCC 210.1770	30	100%
Pre-Calculus	MAT 200.1623	14	100%
Calculus 1	MAT 201.6227	25	100%
Accounting 2	BTA 112.0015-7	35	100%
Pre-Calculus	MAT 200.1630	13	100%
Accounting 2	BTA 112.0020	33	80%
Biology	SCC 210.6370-1	24	80%
Pre-Calculus	MAT 200.1628	16	100%
Biology	SCB 203.6332-3	32	95%
Pre-Calculus	MAT 200.1635	18	100%
Calculus 1	MAT 201.1646	13	100%
Calculus 1	MAT 201.1647	16	86%
Chemistry	SCC 210.1756	19	100%
Calculus 1	MAT 201.1645	17	100%
		Overall	96%

## 6.2.4 Comments

### SSY 101.1953 (Psychology)

1. He is a great tutor. Will recommend him to all my friends.
2. More free pizza!
3. Tutor was nice and sessions were fun and helpful.
4. The sessions were really helpful.
5. Good API tutor.
6. I'm very happy to attend the API because there I found more time to talk and ask about what I couldn't understand in my class.
7. It was a great thing to help all students this semester.

### SCC210.1767-8-9 (Chemistry)

1. The API study sessions are very helpful. I wish I had time for more sessions. The tutor definitely knows what she is doing.
2. The API was great, especially the practice tests. Quick responses!!!
3. I find the API very helpful and I find the tests much easier because I was very well prepared. I also want to know if I could become an API tutor.
4. The tutor was very patient, e-mailed us regularly and did the best to be available for questions.
5. Our tutor would make an amazing teacher!!!
6. I really appreciate the option - I was able to study successfully on my own but really found the practice exams helpful. Also, thank you for answering my specific questions via e-mail.
7. The website was very helpful.
8. The API sessions are of great use. I am completely satisfied with the help and assistance I received. The tutor provided us with the necessary knowledge either online or in real life. Thank you.

9. I enjoyed going to the API study sessions. They were a good review for the material in this class. These sessions helped clarify tougher parts of this course.
10. The API tutor tried to break down everything to make me understand what had been taught by the professor.
11. The two times I was able to go, I found that it was helpful. Thank you for your help.
12. She was very helpful, prepared and constantly e-mailed us updates. She was great!

### MAT 200.1622 (PreCalculus)

1. Good job at explaining and giving practice tests.
2. I could solve my homework problems because I practiced them in the tutoring class, it helped me even more.
3. I wish there could be more one-to-one tutoring available.

### MAT 200.1632 (PreCalculus)

1. Excellent API tutor. Very helpful.
2. Excellent API tutor. He was very helpful.
3. The API tutor is a very good teacher and has been a lot of help for me.
4. I don't feel like Maple software labs contribute to learning. I have not seen much benefit.
5. A bit like a professor in answering questions the students had about anything on the current topic. It was a great help. Very clear on presentation.
6. The tutoring sessions that I took were excellent and really helped me to improve my grade. Those sessions help us a lot and I recommend continuing them.
7. The tutor was truly willing to help students. Very knowledgeable. A professional.
8. API is helpful.

**MAT 201.1648 (Calculus 1)**

1. Very very efficient. I recommend my fellow classmates to attend.
2. No comments. She was great!
3. She was very nice and very helpful for the students.
4. Very patient teacher. Shows concepts in many ways for learning. More helpful than the professor. Cares about our success.
5. Good tutor.
6. API sessions were more helpful than math labs.
7. It's usually hard to practice the exercise questions with the professor in class especially when the pace of the course is somewhat fast. API sessions helped me to solve those questions that came up in the class with a group of students. I had a wonderful time with the tutor. She has awesome teaching skills.
8. These API sessions helped me a lot to get a good score in the first and second tests. The way she taught us was easy to understand.
9. She has been very helpful to help me understand calculus. She has been very passionate and she took her time to explain what was necessary so we could fully understand our problems. She has been a very good tutor and my grade has increased because of her help.

**ENG101.0784 (English)**

1. The tutor was very helpful. Because of him I raised my grades.
2. We need a lot of API.
3. I attended 2 sessions but it was really helpful. Thanks for making it possible.
4. I appreciate help in writing my essays and home assignments! I am the kind of person who has the ideas but needs some assistance in putting them together. The tutor was also very sweet to lend me his books.
5. The tutor was very helpful during class answering general questions about the school. He was very polite and knew the course documents very well.

**SCB203.1728-9 (Biology)**

1. Our tutor is very good. She has a lot of knowledge and knows how to explain many things.
2. She is very helpful. She explains the passages clearly.
3. Thank you API.
4. The tutor was good and committed. Always willing to help. Also, organized and efficient.
5. The tutor has increased my knowledge with thorough explanations to some very difficult questions. My knowledge and interest in the subject is due partly to the tutoring sessions. The additional information that was shared with me also assisted in my positive outlook.
6. Keep up the good work!
7. The tutor is appropriate and knows what she is doing.
8. The tutor was great. She helped us out a lot. Going over old quizzes was a really helpful learning tool.
9. Tutor was helpful. I like that we got extra credit for attending.
10. The hours on Wednesday were not convenient. Could you have more API sessions? (Example: different hours, days and duration).

**BTM101.0054 (Business)**

1. I was very glad that I could use the help of someone who knows the material pretty well, but is still one of us. Those sessions helped me a lot. For the first three weeks I didn't attend the sessions and I got an 86 on my exam. Then, after I used the help of the tutor I received 98 on my next test, and 95 on the next one. He helped me improve my grade a lot. I would suggest API to anyone. He was very patient and very clear with his explanations of the material. He was also very flexible and provided time for me whenever I needed help.
2. I liked the way he made us go over the notes and ask questions to each other and answer them in our own words. Keep up the good work!

3. Very calm, very relaxed about the way he tutors, allows students to answer their own questions with only his guidance.
4. This API is very helpful for us because the material we did not understand in class the tutor helped us to understand better. He was very cooperative and clear.

**SCB203.1723 (Biology)**

1. The API leader was very informative and detailed in the tutorial sessions. She was helpful and patient in catering to our needs and ways of learning. Because of this tutoring I was able to maintain a sufficient grade.
2. For me the tutoring sessions were very helpful and I appreciate her tutorial classes. Thank you.
3. I appreciate the tutor and hope to have tutoring sessions in future classes.
4. The tutor was very helpful and was always ready to answer our questions. She is awesome and very helpful. I really improved.
5. I hope these sessions can continue. They were very helpful and the tutor was very knowledgeable in what she was doing.
6. Very helpful class. The tutor was beyond excellent. I give her an A+++ . She was very helpful and full of information.

**SSY101.1938 (Psychology)**

1. I wish all the courses that LaGuardia has had study sessions because these sessions were very helpful in improving my performance in my psychology class.
2. API study sessions have been valuable to me so far. They helped me to improve a lot in this class. Thank you very much. I believe that it is good for students.
3. The tutor helped me understand the course material better than I thought I would. With her guidance and my basic learning abilities, achieving a good grade was possible this semester.
4. The sessions I attended were very insightful.

5. I would personally recommend these API sessions to all psychology students. They are of great help. They helped me learn a lot and hence improve my grades in this course.
6. I learned a lot from her, she was an excellent tutor. We discussed every detail and she helped us with anything that we felt we needed help with. She was very helpful. Thanks.
7. General Psychology has been an informative and challenging course dealing with human behavior and how development and society interrelate. It will remain relevant as long as we live and build society.
8. I believe that the tutorials were very helpful and encourage others to try them at least one time. Not proud that I sometimes missed classes to attend the tutorials.
9. Tutorials were very helpful for me because it was my first time to take a psychology class. Although I can study with my book, these study sessions helped improve my understanding of the course material even more.
10. I wish I could have attended more tutoring hours but when they were available they conflicted with my day classes. The one day a week I could attend wasn't enough but it was helpful. The department should have a list of all tutors available so that next time students can attend other tutoring sessions when possible.
11. I appreciate the effort to help me to improve my student skills and achieve well in this course.
12. I enjoyed working with API study groups. I saw an improvement in my exams I would have enjoyed coming more if it weren't for my classes. I have a busy schedule.
13. I think the API tutoring sessions are very helpful for students who need them. It's a good idea to have them. It's always an option.
14. If I had time I would go. I heard a lot of great comments about API. I know they would have improved my grade if I had been able to go.
15. Even though I didn't attend the API study sessions I think it's a wonderful idea. I think every class should have something like this.
16. This is a very helpful program especially for international students. I hope to see more API tutors in other classes. Thank you.



17. API sessions helped me a great deal in answering questions related to the course. The sessions were like a group study because we had to answer all questions and also they were like a discussion class.
18. My API tutor was very helpful and very good at the task she had.
19. It is good for students to have tutors. These sessions encourage a convenient atmosphere before a class which I have seen in the friends I have been with in this class.
20. The API sessions helped me a lot to better understand the class and I can now answer many more questions.
21. Our tutor is just awesome!! She has a great way to explain the material and I have learned a lot from her.
22. The API tutoring sessions were great. They should have more tutors for other students taking psychology and biology classes.

**HUP101.6053 (Philosophy)**

1. API is very helpful. Keep the program. It will help a lot of students.
2. The tutor was very good in explaining things.

**SSY101.1944 (Psychology)**

1. The tutor is awesome. She really knows how to relate all life issues with the concepts and that allows me to memorize all topics easier. The tutor also taught me how to study.
2. I enjoyed myself in attending the API sessions. The tutor was very helpful and nice. I have seen a big difference in my grade from bad to good. Thank you so much.
3. The practice exams our API instructor gave were very helpful and useful for studying.
4. I didn't go too many times. However, she was helpful for students.
5. She was very helpful and dedicated even though I didn't get to attend the sessions as much as I wanted because I had a class during her sessions and she was unable to stay after hours with me. Hopefully I could've gotten more help if I had had more time. But she is a great person.

6. The few sessions I attended were helpful.
7. I went to one API session and I got 100 on my psych test. The tutor is wonderful. She is dedicated, professional and intelligent. Thanks API.
8. API tutoring to me was most helpful due to the fact I was able to understand topics better as time went on throughout the semester.
9. I think it was very helpful attending the API sessions and it improved my exam grades.
10. Very helpful and enthusiastic tutor. I recommend her highly.
11. Very helpful and good schedule. Keep up the good work.
12. I heard very good things about all of the sessions. I am sure my grade would have been better if I had been able to attend the sessions.
13. More tutors are needed.
14. I wish I could have attended more sessions.

**MAT202.6234 (Calculus 2)**

1. The tutor was really helpful for my Calc 2. I was struggling with Calc 1 before because I didn't study at all. However, when I came to these tutoring sessions I got help from him. These sessions are great.
2. Very knowledgeable of the subject.
3. We needed more examples. Don't waste time on basic stuff we already know!
4. He was really prepared. For example, he made his own chart (for the math formulas) and even posted the previous tests for review before each test.
5. He teaches really well.
6. The tutor is excellent. His review sessions before tests are the reason I'm passing the class. These sessions are needed because they get the class together in a collaborative setting and when you do that, grades improve.
7. The tutor is a very helpful and punctual guy. He tries so hard to help everyone out in the class. He sends e-mails, alerts gangs to come to the sessions voluntarily.

8. Very helpful and valuable.

9. API study sessions helped me understand what I did in class. API instructor was very helpful.

10. Nice attitude. Always willing to help and explain the topic until it sinks in.

11. The tutor is a very hard working guy who really has a great passion for teaching. Years down the road he will become a great math professor.

12. I hope that one day API can send a tutor to every class. The tutor did a good job throughout the semester. He was always prepared for the class. I wish him the best.

13. It makes me feel more comfortable for the class because I better understand the academic knowledge. The tutor is a wonderful person to help in my calculus class. I appreciate what he did for us. I strongly recommend him.

#### **SCC210.1770 (Chemistry)**

1. He is an excellent tutor.

2. Because of the tutor I was able to score much higher grades on my tests, exams, quizzes and homework. I definitely believe that I was only able to get my good grades (it's only a C+ because I was nervous on 2 tests) because the tutor took the time out to explain EVERYTHING to me.

3. I would write excellent except when other students came to get help, they were often disruptive and annoying. Good tutor.

4. Thanks for the help!

5. Very helpful. Always willing to help out and go beyond what's expected.

#### **MAT200.1623 (PreCalculus)**

1. I had a deeper understanding with these sessions. They are very helpful and I think more because of them.

2. I was able to understand what I didn't understand in class. Because of these API sessions my interest in math increased and this helps me do my homework often.

#### **MAT201.6227 (Calculus 1)**

1. I found these sessions very useful. They helped me understand more and more math problems. He is the best tutor I have ever met in my entire life. Really appreciate what he's done for me.

2. Great tutor. The tutor alleviated my problems with calculus computations. His knowledge was very insightful. Probably the best tutor in the whole math department.

3. The tutor was extremely helpful and helped to pinpoint my common mistakes and solve them. His help boosted my grade. Very happy.

4. Good job.

5. A very helpful tutor. Showed me my mistakes and showed me how to solve the problems correctly.

6. Keep it up.

7. Not structured.

8. He is nice. He always gave us extra time even when the tutoring session was over.

9. We need more tutors. Not all classes have a tutor.

#### **BTA112.0015/0017 (Accounting 2)**

1. I was lucky that I didn't have any classes during the API class so I was able to attend them. But the timing wasn't that effective for other students.

2. I found the tutoring sessions very helpful.

3. API is very helpful.

4. I couldn't attend any sessions because I had schedule problems.
5. The tutor is very good.
6. I usually had a class after this class. Thus I couldn't attend API. If I had a more flexible schedule I could've participated in API. Next time. Thank you.
7. Please have more API sessions. That was the reason why I couldn't go because I had to work.
8. I wish next time API had more sessions so more students could attend.
9. Should provide more intensive practice from the department.
10. Best tutor ever.
5. Sometimes he was more understandable than the professor. I liked the way he tutored us.
6. I did not need tutoring.

**SCC210.6370-1 (Chemistry)**

1. I went one time and it helped me to understand a class.
2. Thank you.
3. Good tutor.
4. Extra help was given even though I couldn't attend. I am thankful.

**MAT 200.1628 (PreCalculus)****MAT200.1630 (PreCalculus)**

1. The help is great but unfortunately due to work and classes I couldn't make many sessions.
2. During the API sessions, he made students participate in different problems even if they understood them.
3. The class is very interesting but the reason I often get low grades is sometimes I get so sick because of my allergies and that makes me embarrassed to come to class because my nose becomes big and keeps running.
4. The API sessions were very helpful in preparing for tests and in practicing skills. I had the opportunity to ask any and all of my questions and clear up any misunderstandings, especially for logarithms. The tutor did a great job at clarifying the material for me.
1. The tutor is outstanding. She is patient, thorough and works well with students. Without her I'd be lost. She deserves a HUGE raise!
2. I will say that the tutoring is helpful for me as I try to understand pre-cal. I wish there was more time for tutoring instead of having just one hour a day.
3. These sessions are helpful for helping out with what we missed in the class and for extra work.
4. Tutor was very helpful. The worksheets given by the tutor were very helpful and gave me a better understanding of the material we were studying.
5. Attending the API sessions was very helpful to me especially when I had to review for tests. I was able to understand the material more clearly with help from the tutor. This was very valuable. Without the help from the API tutor I would not be able to understand the material I do now.

**BTA112.0019 (Accounting 2)**

1. Great tutor. Looking forward to working with him in the future.
2. Even though I'm from another class, he kindly helped me out. He is a good tutor.
3. He is patient, kind and informed well about this subject. He helped me improve my grade.
4. Even though I didn't attend any API classes, the tutor in the class was very helpful.
6. I didn't attend API because I had classes during the tutoring. I know it would help me if I would have attended these sessions..
7. The API sessions helped me to organize the important sessions from the material covered on each exam. The tutor also helped me to understand what I did not get in the class. She also answered very well all my questions. Further, the tutoring sessions were scheduled very flexibly so anyone could easily attend them.

**SCB203.6332-3 (Biology)**

1. At LaGuardia we need more tutors like him. Very dedicated and helpful.
2. He was an excellent API tutor. Very dedicated and cared about his peers. Always pleasant and willing to help when necessary.
3. The tutor is a wonderful and hard working guy. I loved his sessions so far.
4. Thank you so much for your help. I appreciate it. More power to you.
5. I was able to attend tutoring for one session only. I found the tutor to be very helpful in explaining the material and preparing the class for the upcoming exams.
6. This is a wonderful thing and very helpful. Tutors should be given for English writing classes too.
7. I hope this program continues and is implemented for all A+P (anatomy and physiology) courses. The tutor was extremely beneficial and should be commended for his dedication and professionalism.
8. The API tutoring is very helpful. I think you should offer more tutoring hours.
9. If you attend the API sessions you can have a good grade. It's been very helpful for me to attend these sessions.
10. The tutor has been very helpful. My understanding of the materials was made easier by his help.
11. I think the tutor was very knowledgeable and has tried several methods of teaching to benefit all students. I find the tutoring very helpful.
12. Tests should have right answers.

**MAT200.1635 (PreCalculus)**

1. The tutor was very helpful and communicative.
2. His teachings were very helpful for everything.
3. Please continue with the API sessions. They are very helpful.

4. I think API is an extremely good idea. Struggling students have a place to speak up about their problems. Since the tutor is a student, the tutor knows how what it's like and can relate. If he can do it, so can we. Thank you for the help!

**MAT201.1646 (Calculus 1)**

1. The tutor is really helpful. He makes calculus easier than I expected. Hopefully I am able to get an A in this class. By the way, the tutoring sessions benefit students very much.
2. The sessions were very helpful. However, I could only attend once a week because I had classes during the other times. One-on-one sessions (sometimes there weren't any other students there) have helped me even more.
3. Make the API sessions mandatory.
4. He was very helpful.

**MAT201.1647 (Calculus 1)**

1. The API tutor was helpful for my homework and tests.
2. The API study sessions were really helpful. By the way, I needed to put more attention to the class because the sessions were not enough to pass the class.
3. It's very worthwhile to have tutors so that we can discuss and solve problems if we have any confusion and problems in the class. Thanks.
4. The tutoring was excellent and very helpful for the tests. Thank you.
5. We need more than an hour sometimes.

**SCC210.1756 (Chemistry)**

1. The tutor works hard and helps us understand by doing his best. The handout sheets are really useful to improve our grade.
2. I feel the tutor was prepared and very knowledgeable. He made a huge difference in my ability to understand and even enjoy chemistry.

- 
3. The tutor was very good at explaining things. He helped me a lot.
  4. My API tutor had a way of making this course much easier. He made chemistry fun. He took time out of his busy schedule to help us understand. Great tutor!
  5. Although the instructor has his own way of doing his class, the tutor has been very helpful because I have understood all the materials that I had questions about, plus I have learned easy ways to remember things. I am very happy that I had this tutor because he has given us more than is required to help us learn the material for the class. There are few people that go the extra mile. He is one of them.
  6. Good job!
  7. I attended more than 2 sessions but not enough to drastically change my grade.
  8. Best tutor ever! Seriously! Answered all questions, made helpful review sheets, he was very patient and courteous.
  9. He is a very good and helpful tutor who is always willing to help the students.



# Chapter 7

## Miscellaneous



## 7.1 API Quiz

1. List the three (3) most important goals of the API program:

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. API is designed primarily to help students master:

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. What is the best word to describe the API tutor?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. According to API, which three (3) grades are considered to be failures in terms of academic achievement?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Why is collaborative learning or group work so important a concept for API?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. What is the best range of sizes for dividing students into groups during your sessions?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. List the four (4) principles of API as developed in this training manual?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



8. How might you deal with a very large group of students who come to your session (more than 15)?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. List the items you should take with you when you go to an API session?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. How should you facilitate students working in groups?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. List two reasons you should not group two students together?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

12. How should you deal with a student who says, "I don't want to work in a group?"

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

13. What should you do if the teacher asks you to proctor his/her exams or mark his/her papers?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

14. What should you do if you realize that you cannot make a study session?

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

15. List the four (4) best ways of getting students to attend your study sessions:

Answer: \_\_\_\_\_

---

---

16. What is the best snack for an API meeting?

Answer: 

---

---

---

17. How far in advance do you need to request copies for your sessions?

Answer: 

---

---

---

18. When is the best time (or times) to schedule your sessions?

Answer: 

---

---

---

19. What should you do if you arrive in class and discover that the professor has cancelled the class?

Answer: 

---

---

---

20. What is the three letter word that can change a student's hopeless statement to a hopeful one?

Answer: 

---

---

---

21. What should you say to students who refuse to do problems on the board because they are afraid they may get it wrong?

Answer: 

---

---

---

22. What do we call the practice of refusing to answer students' questions before they try to answer them on their own?

Answer: 

---

---

---

23. API is based on a nationally known peer tutoring program known as:

Answer: \_\_\_\_\_

---

---

24. What is Cindy's boyfriend's name?

Answer: \_\_\_\_\_

---

---

## 7.2 What would you do?

Case studies: sexual harassment, diversity, academic honesty, community, and relationships.

Instructions: The following case studies are taken from real situations that have occurred here at LaGuardia and elsewhere. For each situation, role play it with members of your group. Then discuss with them what you would do. List your group's ideas.

1. There are a group of regulars in your sessions who always sit together and form a group. You can see that they consider themselves to be very smart. They often laugh at other students when they make mistakes or don't understand something.
2. You find a student in your sessions particularly attractive, interesting, witty, and kind. In fact, you'd really like to go out with this student. She surprises you by approaching you, telling you that she thinks you are very 'cool' and then asks you to go to a party with her.
3. A student makes a racist remark in an API session. Nobody in the session is of that race.
4. A student in your sessions seems to be hanging around you and is being more attentive than normal. It seems peculiar but not particularly worrisome until

one day the student follows you and tries to light your hair on fire with a cigarette lighter.

5. Students in your session are discussing another difficult course they are taking. You overhear one tell the other that because of grades, his financial aid is in jeopardy so he is paying someone else to do his homework and take the exams.
6. Students are self-selecting into clusters of 3-4 but you notice that there's a group of 5-6 male students and some smaller groups consisting of only two female students. When you ask a couple of the guys to split up and join each of the women's clusters, they refuse, saying that they won't learn anything because everyone knows "girls aren't any good in math and science."
7. The instructor in your API course is a new graduate student, having just graduated from college. Your 30 minute weekly meetings with him/her seem helpful to both of you, for you to get information about what's coming up in the course, and the instructor seeks your observations about how well the students understand the material, whether there is rapport, and generally how well things are going. As the semester continues, the instructor seems to become even more open about class and begins discussing some personal matters. After a few more weeks, the instructor invites you to have dinner together.
8. A student makes a racist remark to his friend in an API session. A few students of that race are in the session.
9. A student comes regularly to your sessions, sits in the middle of the front row, and does not participate. He seems to be involved in thinking about and following the activity but gets a little nervous about the idea of joining the collaborative activities.

## 7.3 Puzzles

Puzzles are excellent “brain teasers.” There are many different types of puzzles. The following are only a few types. Use them with your students as “warm-up” activities and/or create your own.

### Activity 7.1. *CAN YOU SOLVE THIS PUZZLE?*

2     7     4             7     6     2     5     7

### Activity 7.2. *Einstein’s Puzzle:*

*This puzzle is a good “brain teaser.” Can you figure it out?*

*Variations of this riddle appear on the web from time to time. It is sometimes attributed to Albert Einstein and it is claimed that 98% of people are incapable of solving it. Some commentators suggest that Einstein created such puzzles not to test intelligence but to get rid of many of the students who wanted him as an advisor. It is not likely that there is any truth to these stories. Wherever this comes from, it is a challenging riddle.*

*Let us assume that there are five houses of different colors next to each other on the same road. In each house lives a man of a different nationality. Every man has his favorite drink, his favorite brand of cigarettes, and keeps pets of a particular kind.*

- 1. The Englishman lives in the red house.*
- 2. The Swede keeps dogs.*
- 3. The Dane drinks tea.*
- 4. The green house is just to the left of the white one.*
- 5. The owner of the green house drinks coffee.*

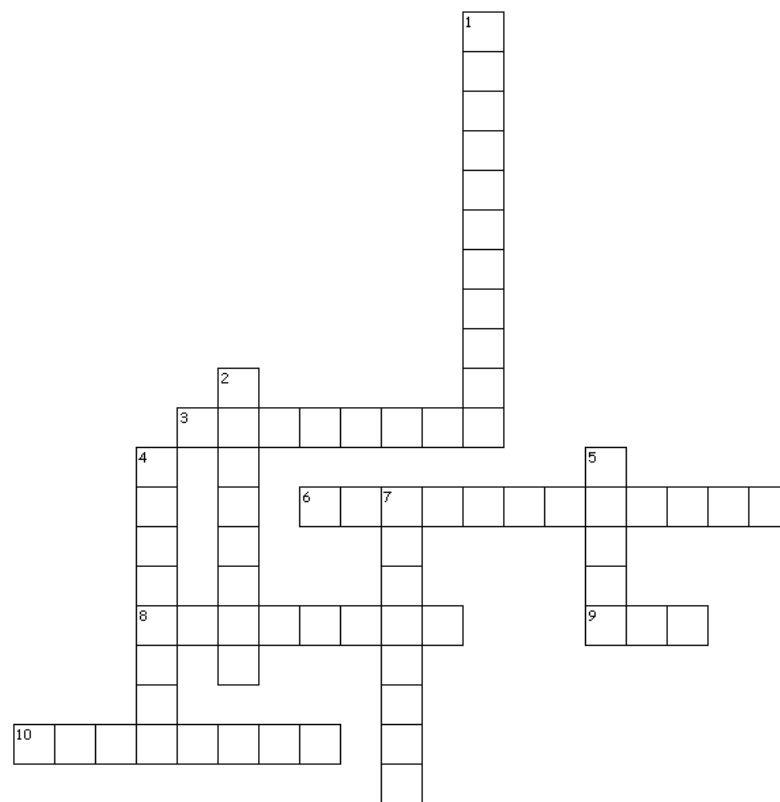
6. *The Pall Mall smoker keeps birds.*
7. *The owner of the yellow house smokes Dunhills.*
8. *The man in the center house drinks milk.*
9. *The Norwegian lives in the first house.*
10. *The Blend smoker has a neighbor who keeps cats.*
11. *The man who smokes Blue Masters drinks beer.*
12. *The man who keeps horses lives next to the Dunhill smoker.*
13. *The German smokes Prince.*
14. *The Norwegian lives next to the blue house.*
15. *The Blend smoker has a neighbor who drinks water.*

*The question to be answered is: **Who keeps fish?***

*Hint: A chart using Excel or a hand made chart and the process of elimination will help you solve this puzzle!*

The puzzles shown in figures 7.1 and 7.2 were created using the website: [www.puzzlemaker.discovery.com](http://www.puzzlemaker.discovery.com). As you can see, they are all related to API and/or related topics. However, you can create your own puzzles for your students by visiting this website. They are fun to do and especially useful as ‘warm-up’ activities.

**Activity 7.3.** Solve the puzzle in Figure 7.1.

**Across**

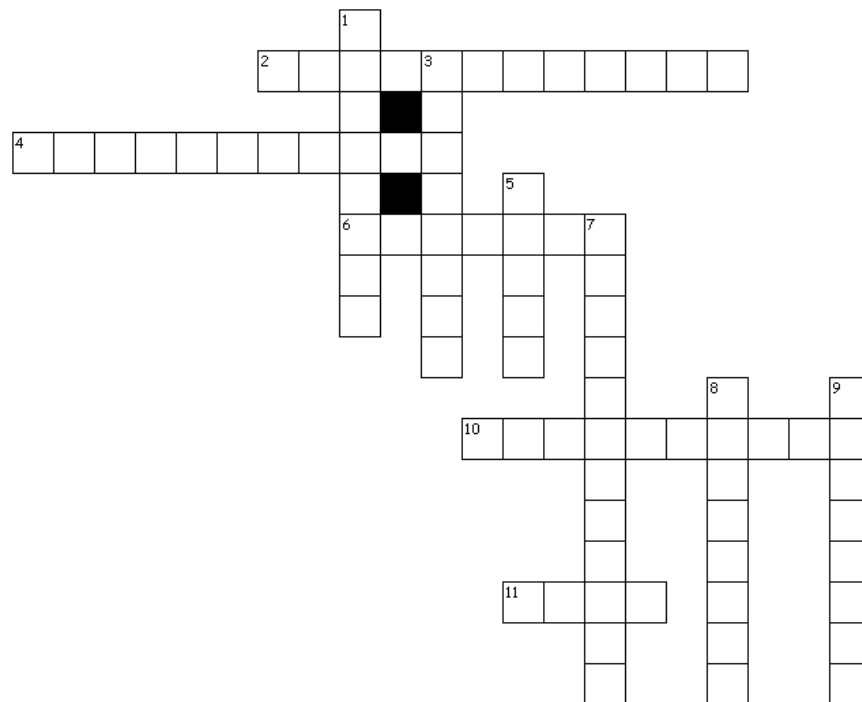
- 3. guiding someone
- 6. making easier
- 8. calculus professor at UCLA
- 9. three letter positive word
- 10. talking through a solution

**Down**

- 1. Bloom's lowest level
- 2. famous Greek philosopher
- 4. learning through repetition
- 5. name of Cindy's boyfriend
- 7. highest level of Bloom

FIGURE 7.1: API Crossword Puzzle 1

**Activity 7.4.** Solve the puzzle in Figure 7.2.



**Across**

- 2. second step in reading
- 4. first step in reading
- 6. person who is exceptional
- 10. study of the mind
- 11. name of world famous anthropologist

**Down**

- 1. esteemed assistant API director
- 3. world famous physicist
- 5. first name of LaGuardia recalcitrant student
- 7. adjective for difficult student
- 8. author of outlier book
- 9. outline for a course

FIGURE 7.2: API Crossword Puzzle 2



**Activity 7.5. API LEADER RESPONSIBILITIES.**

Unscramble each of the clue words in Figure 7.3. Copy the letters in the numbered cells to other cells with the same number.

TAERT TETNUDSS FYLRIA	<div><div></div><div></div><div></div><div></div><div></div></div> <sub>3</sub>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>12</sub>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>		
NEEVR MRIISTNACIED	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>6</sub>			
CETMILMNPO CYULIBLP	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>7</sub>			
TIZCERICI TAILVERPY	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>4 8</sub>			
BE DAPRREP	<div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>10</sub>			
MROF NA E MILA UPGOR	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>11</sub>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>1</sub>	
DAENTT WEYKEL NEGTEMSI	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>5</sub>		
TOW SAYD FO TIANIRNG	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>9</sub>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>2</sub>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>13</sub>
	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>1 2 3 4 5</sub>	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <sub>6 7 8 9 10 11 12 13</sub>			

FIGURE 7.3: Puzzle

## 7.4 Other Activities

### Activity 7.6. IMPROVING ATTENDANCE CLOZE

- (a) *If your attendance is poor it is helpful to 1..... the student surveys. Often 2..... schedules change during the 3..... so that it may be 4..... for you to change your tutoring schedule to adjust for these 5.....*
- (b) *If possible, a small amount of 6..... 7..... can be a potent aide to improving attendance. Ask your 8..... if he or she is willing to 9..... extra credit for students' attendance or if you are not 10..... doing so, ask one of us to ask him/her. With extra credit, some students will come to 11..... because they need and 12..... to improve their 13..... and think this small increase in grade may make a 14..... for them. If the professor agrees, you will need to share your 15..... with him/her at the end of the semester.*
- (c) *When in class, it is important to make yourself 11..... Try to 12..... in a place in the room where students can 13..... you. The 14..... is also an important aid. Ask the 15..... for a small section of it and always write when and where your next 16..... will take place.*
- (d) *17..... is one of the most important tools we have. Business people know this. They spend millions on it. We see it on television, hear it on the 18..... and it is all around us daily. They know it works. Right here, make a list of five ways you can advertise your sessions so as to remind them when and where your sessions will be held: A....., B....., C....., D....., E.....*
- (e) *In addition, the 18..... can make a huge difference in improving your attendance. If s/he "pushes" it, you will see results.*
- (f) *Finally, try to be 19..... and outgoing . This 20..... can make students 21..... to come to your sessions. If they think you are "on their 22....." and know you want to 23..... them succeed, you will see more of them coming to your sessions.*

**Activity 7.7.** *Tips for effective and successful API sessions. A cloze exercise.*

- (a) **(Seating)** The best seating is 1..... because all students are 2..... at each other and they can feel 3..... to one another. Sit 4..... to your students, not behind or in front of the 5..... because 6.....
- (b) **(Questioning)** Avoid: “Do you 7..... any questions? Substitute with: 8..... are your questions? The reason for this is: 9..... Ask students: 10. “..... me what you understand?” instead of 11. “..... you understand?” It’s important to give students 12..... time to answer questions so that 13..... students can respond, not just one or 14..... students. Try to become comfortable with 15..... Don’t try to fill the air with talk all the time. It is a good idea to 16..... up answers that students give with : “Do you 17.....?” (addressed to other students) or “Are you 18.....?” If a student says s/he cannot do a problem, say: 19..... Remember that every question can be 20..... up into small 21..... and in that way, you will 22..... the student to 23..... it.
- (c) Keep in mind that our overall API goals are to increase 24..... and to get students to become more 25..... learners.
- (d) Learn to be 26..... It is not easy . Adjust your session to fit the needs of your students. All of us can cultivate and practice this desirable quality.
- (e) Give away the 27..... or marker. Have your students up at the 28..... as much as possible. Do not let them be 29. “..... potatoes.”
- (f) Use illustrations as much as possible. Was it the Chinese who said? 30. “..... is worth a thousand 31.....
- (g) When you use visual material, always leave 32..... that students have to 33..... in, thereby labeling the picture or diagram.



# Chapter 8

## Answers

### 8.1 Pre-Test Answers

#### EXERCISES

1. With a partner, list 5 questions you would like to ask Barry if you had lunch with him. (Don't ask him about his hamburger, please!)

**Possible questions:**

- (a) **Why do you think you are doing badly?**
  - (b) **Tell me what ideas you have as to how you could improve your grades?**
  - (c) **Do you think your working full time affects your grades? Yes, No, Why?**
  - (d) **Is there any way you could reduce your working hours during each semester?**
  - (e) **Why don't you come and try my API sessions? What do you have to lose? You told me you are not sure that studying alone is working for you.**
2. Now together write five (5) conclusions you have drawn from performing this exercise. Put them on the board to share. **Possible Conclusions:**

- (a) Barry needs to realize that he is perfectly capable of doing better. He just needs to make some changes, such as working fewer hours, attending API sessions, and that studying with others can help him.
- (b) Barry needs to just put in more time studying. It appears that he doesn't do enough.
- (c) Barry is motivated and therefore can achieve what he wants to. He said he 'desperately' wants to improve his grades. He just needs to learn how.
- (d) He is probably right about his girlfriend. Sometimes it is difficult to study with someone if you are emotionally involved with that person, especially given that she is a better student.
- (e) Barry, with the proper adjustments, can and will become a much better student!

## 8.2 Chapter 1 Answers

### Answers to Activity 1.1:

Answer the following questions. These questions are based on Bloom's Cognitive Domain Taxonomy (see section 2.4.1).

1. **Remembering:** What do the letters 'API' stand for?

**Academic Peer Instruction**

2. **Understanding:** Explain how API works?

API targets 'high risk' or difficult courses rather than failing students. Tutors are assigned to a section of one of these courses. These tutors are good students who have completed this course and achieved a grade of 3.5 or higher on it. They then re-attend the class, taking notes but not taking exams. They organize and conduct a minimum of 3 group study sessions for students in their section with the goal of helping students improve their performance in the targeted course.

3. **Applying:** What have you done in the past that might prepare you for being an API tutor?

**Answers will vary here.**

4. **Analyzing:** Compare other tutoring programs with API tutoring? How is API different? How is it the same?

**API is similar to other tutoring programs in that it provides support by helping to prevent failure and improving students' performance. API is different in several ways: (a) Tutors have taken the course and re-attend it, (b) The emphasis is on group tutoring, not individual tutoring, (c) Tutors are not permitted to 'teach.' Instead they are required to get students to practice the principles of 'active learning,' (d) API tutors help and encourage all students in their targeted class to attend their study sessions. Therefore, our program tends not to have a stigma attached to it, that it is only for 'dumb' students. All students who wish to improve their grades (or assure a higher grade) are encouraged to attend the study sessions.**

5. **Evaluating:** What is the chief value of API? What are its limitations?

**The chief value of API is that we know that it works and have data to support it. Students who attend API sessions achieve on the average approximately one grade higher in their targeted course than students who do not.**

6. **Creating:** How could API be improved upon? Be a better program? What are your ideas?

**Answers will vary here. One possible answer: It might be better if tutoring hours were made a part of the course and tutoring hours were mandated for all students. This way, students couldn't say that they can't attend tutoring because of work. The tutoring hours would be a part of their school schedules.**

## 8.3 Chapter 2 Answers

### Answers to Activity 2.2:

1. Explain the difference between a coach and a teacher.

A coach sits on the sidelines and does not play the game. S/he is a facilitator and a planner, advisor and analyzer of the practices and the games. In contrast, traditionally, a teacher leads the group doing much of the work, showing and telling the students what they must learn.

2. Define: ‘active’

Active - in terms of learning this means that the students take the initiative in learning course materials. They understand that it is in actually doing and practicing these materials that they will master them.

3. Define: ‘process’.

Process - an activity that occurs over a period of time involving many steps. Learning to read is an example of such a process. It may take the average child almost a full year to master the fundamentals of reading.

### Answers to Activity 2.3:

Viewing and analyzing an API session with respect to the concept of active learning. With a partner, write comments about the video or videos we watch. (1) First identify who is the tutor. Explain your answer. (2) Then describe how the tutor in this session promotes active learning. (3) Make a list of what s/he does: (and doesn’t do!)

#### A few possible comments:

1. The tutor was not in front of the room lecturing. Instead he was wandering about, helping individual students as they worked on problems.
2. Students were up at the board collaborating in small groups solving problems.



3. The room had an ‘active’ feel to it. In fact, it was somewhat noisy as students discussed with each other how to best solve problems.

#### Answers to Activity 2.4:

Describe your experiences with group work. What has worked? What hasn't? Why?

Some possible answers: (a) Group work works when students are willing to cooperate with each other and recognize the value of solving problems together. (b) It may become problematic when students have strong negative feelings about it because of no prior or poor experiences with it.

#### Answers to Activity 2.5:

Explain what the following concepts required for collaborative learning mean:

1. Require tangible output: **Group activities need to be carefully planned so that each group must do something concrete and visible, for example: solve a problem, write a definition, complete a table, etc. etc. It is only then that the tutor or leader can evaluate what the group has accomplished.**
2. Based on important course concepts: **Group activities must involve the completion of challenging activities that are relevant and important for success in the course.**
3. Require complex problem solving: **Group activities must be sufficiently complex so that they challenge students to get involved in solving them.**
4. Ask higher level questions (Bloom): **Tutors must be sure that their activities include questions at all levels and not just ask students to answer lower level questions.**
5. Have a time limit for completion: **Activities must be time limited. This helps keep the group on task since they know that they will be asked for the results of their work in a limited time.**

6. Have clear criteria for evaluation of the group's work: **It is important that the activities that the tutor prepares have answers (even if there is more than one possible answer) that can be judged as correct or incorrect.**

### Answers to Activity 2.6:

Explain the reason the following conditions are beneficial when forming learning groups:

1. It is better to assign membership (put students into groups). It is usually not a good idea to let them form groups on their own. Why?  
**Often students will form groups with those they already know making others feel excluded, or with students from the same ethnicity, race or religion, thereby segregating themselves. One of the objectives of group work is to get students to practice multiculturalism and thereby foster community.**
2. Create heterogeneous groups. Why?  
**As explained above in answer for 1, one of the goals of collaborative learning is to encourage students to get to know others of different nationalities, religions, ethnicities and color. It can also foster their fluency in English since they will be forced to communicate in the only language they have in common.**
3. Make your groups small in size (2-3, no more than 4 students). Why?  
**Groups that are larger than 4 allow some students to behave as 'sponges,' listening and profiting from the work of others but not contributing themselves and therefore not participating as active learners.**
4. Make sure your groups have an assigned leader who will report the work of the group. Why?  
**If there is no leader, than there is no one person who is responsible for keeping the group members on track, assuring that they are making progress in completing the assigned activity.**
5. Rotate roles. Why?  
**If leaders are not rotated, the group will become stagnant and will**

**begin to assume that the leader will continually be ‘in charge.’ All students, when working in groups, should be required to assume leadership responsibility, at some time.**

### Answers to Activity 2.7:

Read the following summary about Uri Treisman and his work and then answer the questions that follow:

**I. (Uri Treisman’s research on the success of groupwork)** [11] Uri Treisman, a professor of mathematics who taught calculus at University of California, Berkeley, demonstrated that he could greatly improve the success rate of his Black students by teaching them to work in groups - he called them workshops. He developed these group workshops for his calculus classes after discovering that his Chinese students were excelling and his Black students were doing very poorly, many failing. He decided to research how his students studied by actually visiting them and watching how they studied. He found that although both groups were dedicated and good students, having done well in mathematics in high school, his Chinese students had formed groups, they called ‘study gangs,’ in which they studied together helping each other to improve their calculus knowledge. In contrast, his Black students, for the most part, studied alone. When asked why, they responded that they had always studied alone and it had worked for them in high school. What Treisman then did, was develop mathematics workshops based on his Chinese students’ ‘study gangs.’ In these workshops, students worked collaboratively in small groups with more expert leaders - usually graduate students. The workshop leader facilitated problem solving by providing hints and clues but not doing the work for the students. Treisman’s results? Very shortly, his Black students who attended these workshops, were performing as well, if not better than his Chinese students. Treisman had demonstrated that it is not innate ability but group study that can make a huge difference in success in learning a difficult subject such as calculus. (You can read much more about his work in [11])

### **II. Questions to answer based on this article: (using Bloom’s Cognitive Domain Taxonomy, see section 2.4.1)**

Level 1: Remembering: Name the mathematician who is the focus of this article? What is his position?

**Uri Treisman. He is mentioned as a professor of mathematics at the**

**University of California.**

Level 2: Understanding: Explain what this mathematician discovered about the students in his calculus classes?

**Although all of his students had been excellent students in high school, his Chinese students were for the most part excelling, while his Black students were doing poorly.**

Level 3: Applying: What did the mathematician do to explore the reasons for what he found?

**Professor Treisman went to the students' dormitory rooms to see how they studied.**

Level 4: Analyzing: What did the author do to improve the disparity he found? Explain how his mathematics workshops operated?

**Prof. Treisman created study groups called mathematics workshops for all of his students who were doing poorly in his course. These mathematics workshops followed the models of his Chinese students' 'study gangs' except they also had an expert leader, usually a graduate student.**

Level 5: Evaluating: Explain why you think that the students in 'study gangs' performed so much better than those who studied alone?

**Answers may vary. One possible answer. The students in 'study gangs' could help each other so that when one student got stuck there was usually another one in the group who could explain the 'sticky point.' Both students would benefit. The one who explained the solution and the one who reinforced his knowledge by reviewing it. Students who studied together got both subject area and emotional support from each other making them less likely to drop a course.**

Level 6: Creating: How are Treisman's mathematical workshops similar to API study sessions? How are they different?

**Both methods rely on the benefits of collaborative learning. Treisman's mathematical workshops employed graduate students. API uses peers - excellent students who have recently completed the same course.**

**Answers to Activity 2.8:**

**Compare your questions with those in Chapter 2, Activity 2.7.**

**Answers to Activity 2.10:**

Together with your group, write six (6) questions based on the following brief story about this LaGuardia student. Then answer the questions. Put your work on the board.

Barbara graduated from Jamaica High School with a B+ average. She loves sports and was a star on her school's basketball and volleyball team. She thinks of herself as 'smart' because she was always able to do well in her classes in high school without doing much studying. She is an attractive young woman and although she doesn't have a boyfriend right now, she has many friends and loves to party. As she puts it best, "weekdays are for school and work, but weekends are for partying." She loves to dance and is particularly good at salsa and merengue. In addition, Barbara also loves to shop for fashionable clothing. She has a part-time job at an expensive clothing store and spends almost everything she earns at the store. "It's a great deal," she says, "because they give me a 40% discount on the clothing."

She came to LaGuardia because she decided she wanted to become a nurse and heard that LaGuardia had an excellent nursing program. Now she is enrolled in Fundamentals of Biology - otherwise known as Anatomy and Physiology and is also taking three other difficult courses. She has also joined the Salsa Club and spends several hours a week in school with her friends from this club. She is proud of the fact that she was just elected President of this club.

In late April, Barbara started to come to API sessions for help. She told the tutor that she has a 75 average on her biology exams and needs to get an A in this course if she is to get into the nursing program. When the tutor asked her about her studying and her class attendance, Barbara reported that she attends class and lab religiously, takes notes and studies by reading over her notes the night before her exams. She did this in high school and got A's and B's. She is very puzzled.

**Questions:**

Level I question: **Who is this story about?**

Level II question: **Summarize this story.**

Level III question: **Compare Barbara's story to someone you know. How is Barbara different? How is she similar?**

Level IV question: **What exactly is Barbara's problem? Why do you think she is not doing better in this course?**

Level V question: **What is your opinion of this story? What value can it have for people learning to be API tutors?**

Level VI question: **Write your own story based on a student you have known who had issues about achieving.**

### Answers:

#### I. **Barbara**

II. **Barbara is a LaGuardia student who considers herself to be a good student. She wants to become a nurse but is having problems with Anatomy and Physiology. She is worried because her grades in this course average a 75 and she knows she needs a higher grade. Barbara is conscientious. She comes to class and studies her notes before tests. She has started to attend API sessions because she is aware that she must do something to improve her grade in this important course.**

III. **Answers will vary.**

IV. **Barbara may have other problems, but from this story it is clear that she is not dedicating enough time studying for exams if she only reads over her notes the night before. Anatomy and Physiology is a difficult course. Barbara needs to learn how to study regularly and do more than just read over her notes. Attending API sessions with undoubtedly help her with learning how to study productively for this course.**

V. **Barbara's story has value in that it provides an opportunity to see how API tutors can help students improve their performance in difficult courses such as Anatomy and Physiology.**

VI. **Stories will vary here.**

### Answers to Activity 2.11:

Fill in the blanks.

1. Bloom's **taxonomy** is an excellent source for developing **questions**.
2. Its purpose is to **categorize** questions according to levels of **difficulty or abstraction**.

3. There are **six (6)** levels of questions according to Bloom.
4. The lowest level of the revised taxonomy is: **remembering**. This lowest level requires students to **remember some brief information**.
5. The highest level is: **creating**. It requires students to **create or invent something new**.
6. “Summarize this article in your own words” is an example of level **2, understanding**.
7. “Explain how this problem is similar to this other problem.” This is a level **4, analyzing** question.
8. What is the value of Bloom’s method of questioning? **It is useful for creating or analyzing questions.**
9. How might you use Bloom in developing materials for your sessions? **Answers will vary. One possible answer: “It will help me plan my worksheets or practice tests. With this taxonomy, I can check that I am asking questions on a variety of levels.”**

### Answers to Activity 2.12:

An informal quiz: reviewing Bloom’s taxonomy.

Instructions: The following are questions written about API. For each question, identify which level the question reflects using Bloom’s revised taxonomy as a guide. Then justify your answer. DO NOT ANSWER THE QUESTIONS.

1. Devise a tutoring system using API as a basis, that would work in high schools.  
Level: **Level 6: Creating**  
Justification: **The question asks us to create something new.**
2. What do the letters ‘API’ stand for?  
Level: **Level 1: Remembering**  
Justification: **This question is at the lowest level. It just asks us to remember some information - an abbreviation.**

3. Describe how API works:  
Level: **Level 2: Understanding**  
Justification: **This question asks us to explain how API works - so it is a matter of understanding.**
4. Why does API work?  
Level: **Level 4: Analyzing**  
Justification: **This question requires us to analyze the reasons API works.**
5. How could API be changed so it would become a better program? What are your ideas?  
Level: **Level 6: Creating**  
Justification: **This question asks us to come up with new ideas. Therefore it is a creative question.**
6. What year was API started at LaGuardia?  
Level: **Level 1: Remembering**  
Justification: **This question just asks us to remember a fact - namely a date.**
7. Describe the limitations of API:  
Level: **Level 4: Analyzing**  
Justification: **This question asks us to analyze how API is lacking and by inference, how it could be made better.**
8. How is API as a tutoring program distinct from other tutoring programs?  
Level: **Level 4: Analyzing**  
Justification: **Again, this question asks us to compare and contrast API to other tutoring programs. Therefore it requires analysis.**
9. What is a taxonomy?  
Level: **Level 2: Understanding**  
Justification: **While this might be a level 1 question, just asking us to remember some information, it is more probably a level 2 question. The term ‘taxonomy,’ is not a simple concept. It requires understanding to explain what it means.**
10. Describe the role of an API tutor as compared to the role of a professor:  
Level: **Level 4: Analyzing**



Justification: **This is another analysis question. We are being asked to compare the role of an API tutor with that of a professor.**

### Answers to Activity 2.13:

The following are statements that a tutor can use when redirecting questions. Fill in the blanks:

1. “I am not here to give you **answers** but to help you find them.”
2. “I am **here** to help you learn.”
3. “I will not be taking your **tests** or exams. I promise to help you when you are completely **stuck**, but I want you to begin trying to do more and more on your **own**.”
4. “The more you do on your own, the more **active or independent** you will become as a learner and the less you will need me to help you.”
5. “I want you to get to a **place** where you don’t need a tutor.”
6. “Before I answer the **question**, I want you to try and **answer** it.”
7. “Why don’t you just give me the **beginning** of the answer, and we can **go** from there.”
8. “Can anyone else **answer** this question? **Solve** this problem?”
9. “What do we have to do **first** to answer this question?”
10. “Let’s look that up in the **textbook**.”
11. “That’s an excellent **question**. Many students have problems in this area. Who can **answer** it? Then we’ll go from **there**.”
12. “That is a difficult **question**. I want all of you to put the **question** in your own words to make sure you **understand** it. Show me what you’ve **written**.”
13. “What information will you **need** to answer this question?”

**Answers: Follow up to Activity 2.14:**

1. As a tutor, how did it feel to refuse to answer the question?

**Generally, teachers and tutors find it difficult to refuse to answer a question. We are by nature ‘helpers’ and want to provide answers.**

2. As a student, how did it feel to have the tutor refuse to answer?

**Many students get annoyed or frustrated when teachers or tutors redirect questions. They want answers, not more questions.**

3. How might you make students feel better about your refusal?

**We can explain that they will be taking the tests and exams and answering questions is good preparation.**

**Answers to Activity 2.15:**

The following cloze is designed to see if you have become knowledgeable on a very important technique - Redirecting Questions. Fill in the blanks. Be aware that some of the blanks may have more than one correct answer.

A 1 **method** for questioning that relies on the tutor not answering questions is called 2 **redirecting** questions. This means that the 3 **tutor** should always get 4 **the student** to answer either 5 **his/her** own questions or that 6 **other** students should be encouraged to try. This method will be often met by 7 **resistance** by students who may say, “Why won’t you just 8 **give** me the answer?” When a student says, “I can’t do it,” you should respond by just adding the three letter word: 9 **yet**. 10 **Redirecting** questions is very difficult because most of us want to 11 **help** students and think that answering their questions will 12 **increase** their knowledge. Also, students believe that they only need to 13 **know or have** answers, not practice working problems out on their 14 **own**. It is 15 **important** when using this technique to 16 **explain** that you are not answering their 17 **questions** because you want to be sure that they know the answers. You are not doing it because you want to be 18 **mean or difficult**. A good way of dealing with this is simply 19 **saying**, “I will not be 20 **taking** the test so I want to be sure that you know how to answer it. Often students when 21 **told or asked** to try to answer a question will say, “I know it, but I can’t 22 **explain** it.” What that really means is that they don’t 23 **know** it. After all, how could a 24 **student** write that as an answer on a 25 **test**? How much credit would he or she 26 **receive**

**or get** for this answer? You can also say, “Think about it. How would you **feel or respond** if you asked your doctor a question and s/he **answered** with that response?” Students after they understand this **idea** will get used to your technique of redirecting **questions**. They will begin to willingly try to answer their own and other students’ **questions**. They will become more willing to come up to the **board** even if they are not completely **sure** that their work is completely correct. To further encourage this behavior, memorize and **repeat** this statement to them on a regular basis: “This is a good **place** to make mistakes.” Finally, do not go overboard on redirecting **questions**. If you sense no one **knows** the answer, don’t allow the level of frustration in the room to rise to **unpleasant or frustrating** levels. You can offer to do the **problem** and say, “I’ll do this one. Pay attention, because I’m **going** to ask you to do the **next** one on your own !” Or, if the hour is ending and you want the **students** to leave with the right answer, not the **wrong** answer, do give them answers. But remember, giving students **answers** should only be the **last** resort.

### Answers to Activity 2.16:

Many tutors find themselves using a preponderance of closed-ended questions with very few open-ended questions. Give at least three reasons why this is so:

1. **Closed-ended questions are easier to write.**
2. **Closed-ended questions are simpler to answer - usually.**
3. **Students prefer these types of questions. They don’t require so much thought.**
4. **These questions resemble the types of questions they have most experienced.**
5. **These questions take less time to answer.**

### Answers to Activity 2.17:

For the following questions/statements, write whether they are open-ended or closed-ended: Write ‘c’ for closed and ‘o’ for open.

1. What is the answer? **C**

2. How do you solve this problem? Explain the steps. **O**
3. Explain in more detail. **O**
4. Can you give me more information about ....? **O**
5. What information did you need to solve this problem? **O**
6. How did you know which formula(s) to use? **O**
7. Do you understand? **C**
8. Tell me what you don't understand. **O**
9. Do you have any questions? **C**
10. Have you got it? **C**
11. What are your questions? **O**
12. Explain to me where you are confused. **O**
13. What do you mean by .....? **O**
14. How may I help you? **O**
15. Show me how you: solved this problem, did this entry, figured out the solution to this puzzle, arrived at this answer or conclusion. **O**
16. What is the date of the exam? **C**
17. How many of you answered this question correctly? Raise your hands. **C**
18. What is your e-mail address? **C**
19. How many levels are there in Bloom's Taxonomy? **C**
20. Describe each of Bloom's levels giving its name and what it involves. **O**
21. Do you like Chinese food? **C**
22. What kinds of ethnic foods do you enjoy eating? **O**
23. Is LaGuardia College a good place for you? **C**
24. Why did you choose to come to LaGuardia College? **O**

25. What color is Dr. Zaritsky's brownish/grey hair? **C**

**Final question:** How might you follow up a closed-ended question that all of us ask at some time or another: "Do you understand?"

**By responding if the student answers "yes," "Tell me what you understand," or simply, "Explain."**

### **Answers to Activity 2.19:**

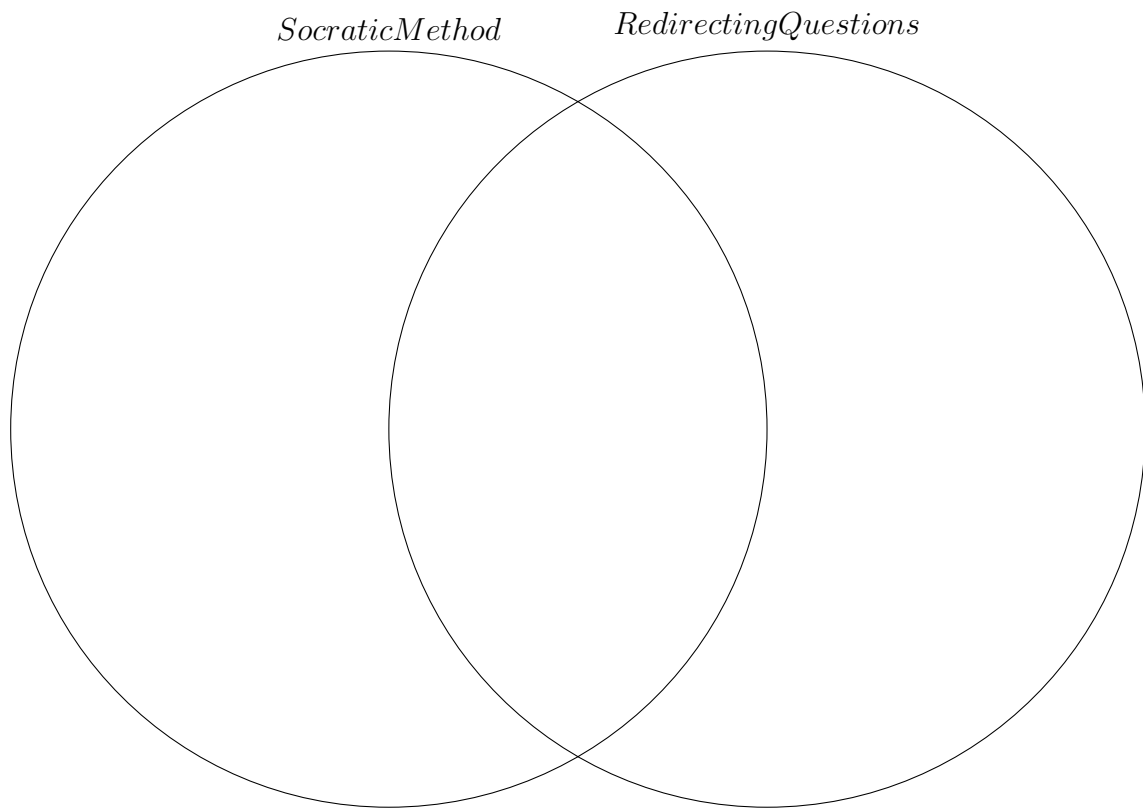
Some of Socrates's philosophy and beliefs are summarized in the following four statements. For each statement: (a) Explain what the statement means by rephrasing it in your own words and (b) State whether or not you agree with it and explain why.

1. "The only true wisdom consists in knowing that you know nothing. "
  - (a) **Note the similarity to the quotation attributed to Einstein, (see Activity 4.12 in this manual) "We don't know one percent of a millionth of anything."**  
**Only when we accept that we know nothing do we achieve true wisdom.**
  - (b) **Answers will vary.**
2. "The care for wisdom and truth is the highest good. Virtue does not come from money, but from virtue comes money and every other good thing for mankind."
  - (a) **Most important for us to do is to reach for wisdom and truth. Goodness does not come from being rich and having a lot of money, but if you are good and behave in an ethical way, money will come to you as will many other good things for you and for people of the world.**
  - (b) **Answers will vary.**
3. "Virtue = knowledge. To know the good is to do the good. Evil, wrongdoing are due to the lack of knowledge or ignorance. Socrates: "No one does evil voluntarily." We do evil, thinking it will bring good. (A thief who steals a diamond ring thinks it will bring good - impress others, bring a better life, provide sexual favors.)

- (a) **Education about what is right and good brings the ability to do good. When people perform evil acts it is because they are ignorant and don't have enough good information. They believe that their bad or evil acts, like stealing, will result in a good outcome - they will become rich, lead a better life and/or find satisfaction and happiness in sex.**
  - (b) **Answers will vary.**
4. "One needs always to think about life, human nature, the true nature of human beings in order to know what is good for humans and what will bring happiness. - An unexamined life is not worth living."
- (a) **If we don't understand what makes people 'tick,' we cannot know what is good for us and what will bring us happiness. (Is Socrates arguing that we must all study human psychology to understand ourselves and others?) If we don't examine and analyze our own actions, then our lives are not worth living.**
  - (b) **Answers will vary.**

### **Answers to Activity 2.20:**

Comparing the Socratic Method with the methodology of redirecting questions: How is the Socratic Method similar to and how it is different from redirecting questions? Use a Venn diagram - supplied below - to answer this question.



**Socratic Method:** Tutor asks leading and difficult questions to force students to challenge and perhaps change their beliefs and knowledge regarding important issues. Often used when dealing with broad philosophical, ethical and hypothetical scientific questions. Generally used for higher level questions. (Bloom)

**Both Socratic and Redirecting Methods:** Methods of making students into ‘active’ learners who can begin to solve problems on their own - getting them to realize that they can become self-learners. Encourages thinking!

**Redirecting Questions Method:** Tutor refuses to answer students’ questions but instead turns them back to the group and to the student asking the original question or questions. Tutor then uses students’ answers as building blocks for more knowledge. Can be used for any level question. (Bloom)

**Answers to Activity 2.22:**

Refer to example 2.4 and discuss the following questions with a partner:

1. What do you think is Joe's problem?

**He is familiar with the course material but hasn't practiced solving problems enough. In other words he hasn't practiced enough and hasn't developed automaticity. He must do the homework religiously even if it is not graded. This way, he will know what he knows and what he doesn't.**

2. Why do you think he failed this math test, when he understood the material that was presented in class?

**The answer is similar to the answer to number 1 above. Joe did understand the material but hasn't done enough practice. He therefore works too slowly on tests and probably runs out of time.**

3. What do you think might be Joe's explanation as to why he failed?

**Joe appears to be unfamiliar with his problem. I don't think he understands it.**

4. What would you suggest to Joe to help him do better?

**(1) Start attending API sessions regularly, (2) Do the homework religiously.**

**Answers to Activity 2.23:**

The following is a cloze exercise about distributed and massed practice. Fill in the blanks:

Distributed practice is a technique whereby the student 1 **distributes** his/her study effort in a given course over 2 **several** study sessions that are relatively short in duration. This can be 3 **compared** to massed practice (otherwise known as cramming) whereby the student conducts few but 4 **long** study sessions for a given course. It has been proved beyond a shadow of a 5 **doubt** that meaningful learning is promoted when 6 **distributed** practice is conducted. In contrast, massed practice promotes rote 7 **learning**. For the long-term benefit of the student, 8 **distributed** practice should be the method an excellent student chooses to use. After a 4-5 year college career, a student who followed the distributed practice



9 **method** would be miles ahead of a student who followed the 10 **massed** practice technique. Unfortunately, some college courses encourage massed 11 **practice** by giving only 2-3 exams during the semester (and little else for assessment). When only 2-3 12 **exams** are given, the student masses study sessions immediately 13 **prior** to each exam. This testing frequency (2-3 exams/semester) also 14 **encourages or promotes** the less desirable, rote learning. How can a student 15 **use** distributed practice? Well, it takes motivation and determination to get this all rolling. Probably one good 16 **method, plan or way** is to schedule study times on a week to week basis at the beginning of each 17 **week**. That is, set aside one 50 minute 18 **study** session each day for each course. Do this for Monday through Saturday, leaving Sunday as an off-day or catch-up day or even as a total 19 **resting or recreation** day or family day. After the semester gets rolling, 20 **changes or adjustments** may need to be made. Perhaps some courses don't need the daily 50 minute study session Monday-Saturday, with some sessions skipped 21 **during** the week. In other cases, some courses may require more than 22 **one** daily study session. Only the individual student can judge whether adjustments are 23 **necessary or needed**. If a student needs so much study time that there isn't enough time in the day to 24 **schedule** sessions, that student should consider dropping a 25 **course** or two. For distributed practice to be successful, the student must be able to follow his/her study 26 **plan**. Don't let interruptions spoil it. Think of your study schedule as a 27 **rigid or set** schedule, something that must be followed. If you find that other people or other activities 28 **keep** you from keeping on schedule, then you are going to falter. Go hide someplace during your 29 **study** sessions (the library works well for this studying, if you find a corner that is quiet in the stacks). Another hint, take study breaks- study for 50 minutes then get up for a 5-10 minute 30 **break**. Then come back to more of the same subject, or better yet, go on to a new subject.

### **Answers to Activity 2.24:**

Answer the following questions:

1. Which type of practice, massed or distributed do you think has been shown to be more effective in mastering material and really learning it? Why? **Distributed practice has been shown to be more effective because practice occurs regularly and frequently so there is no or less forgetting between study sessions.**

2. How might the concept of scaffolding be applied in your area?

**Answers will vary.**

### Answers to Activity 2.25:

Fill in the blanks:

1. Practice is defined as the **repetition** of an **activity** or behavior for the purpose of **mastering it or learning it**.
2. Malcolm Gladwell, in his book , “The Outliers,” presents research that says that in order to become really expert at a **difficult, highly complex or highly skilled** task, we need to put in **10,000** hours.
3. There are three types of practice: massed, distributed and **deliberate**.
4. Practice must be **varied** so it doesn’t become too **boring**.
5. Gradually giving the student less and less help is called **scaffolding**.
6. It is important for students to learn the goal of **automaticity** which means that they can perform the task, solve the problem quickly without having to think too much and question their results.
7. It is also important to **supervise** beginning stages of practice to **prevent** errors. We don’t want students learning **wrong information**. Our goal should be **100** % level of accuracy.
8. Without practice, **learning** of new information can be forgotten within **a few** hours.
9. Students often object to practice saying: “I know it, but I just can’t **explain** it.” What this means is **they do not really know it**.
10. Often students don’t understand the importance of practice and developing **automaticity**.
11. Many students think that if they **understand** what is presented in class there is no need for **practice**.
12. **Deliberate** practice refers to how we practice.

**Answers to Activity 2.26:**

Explain the following concepts related to the role of practice:

1. Practice: **The repetition of a complex task until it becomes automatic.**
2. Automaticity: **The learning of a complex task so that it can be done almost automatically. It has become so well learned that it can be performed quickly and so that it looks easy - even if it is not. (Example: figure skaters)**
3. Malcolm Gladwell's "10,000 hour rule:" **Malcolm Gladwell proposed that in order to become really an expert in a field - an 'outlier,' one must practice for 10,000 hours.**
4. Outliers: **People who are so expert in a field that they are known, recognized and admired by others.**
5. Massed practice: **Practicing infrequently for a long time at long intervals.**
6. Distributed practice: **Practicing frequently for shorter times over longer periods.**
7. Scaffolding: **When a tutor or a teacher provides support to help students learn a new and difficult task and then gradually removes the support or scaffolding, forcing the students to do more and more on their own.**
8. Deliberate practice:

**Answers to Activity 2.27:**

Complete the following:

1. Bloom's Taxonomy has **6** levels of questions.
2. Going from simplest and most concrete to most difficult and abstract, they are:
  - (a) **remembering**

- (b) **understanding**
- (c) **applying**
- (d) **analyzing**
- (e) **evaluating**
- (f) **creating**

3. What is the value of Bloom's Taxonomy as a learning tool?

**Bloom's taxonomy gives us a way of creating and evaluating questions so that they test different levels of thinking.**

4. How might you use it in your tutoring?

**Answers will vary.**

## 8.4 Chapter 3 Answers

### Answers to Section 3.6: The Differences Between the 12-week and 6-week Session

1. You need to "hit the **ground** running." First day of **classes** and last day of classes are only **six** weeks apart. This means that you **must** start tutoring by the end of the **first** week, if you are going to **complete** 30 hours of tutoring.
2. Surveys need to be done the **first** day, latest the **second** day. Tutoring hours must be **started** by the 2nd or 3rd class **session**. As soon as you know the **days** and **times** you wish to tutor, see **the API staff** for room assignments.
3. **Five** hours of tutoring must be divided into  $2 + 2 + 1$  hours. A **3** hour session is **much** too long. In addition, sessions must be reasonably **spaced**. Students need continuity. As you know, distributed **practice** is better than massed practice.
4. Deal with **poor** attendance immediately. What to do? Contact **the API office** immediately!!!

**Answers to Activity 3.1:** Answer the following questions:

1. Why is the 6-week session sometimes considered to be more difficult than the 12-week session?

**A lot of material is expected to be mastered in a short period of time.**

2. Why is the 6-week session sometimes considered to be easier?

**Students are taking only one or two courses.**

**Answers to Section 3.8: Promoting Cultural Diversity**

**Introduction:** With regard to race and ethnicity, our LaGuardia student body breaks down as follows: 17% Asian, 16% Black, 37% Hispanic, 10%, White (non Hispanic), 3% Other and 17% Unknown. The chart shown in Figure 8.1 offers a comparison of student race and ethnic background for years 2007 and 2011. Our students come from over 100 countries and speak more than 125 languages!

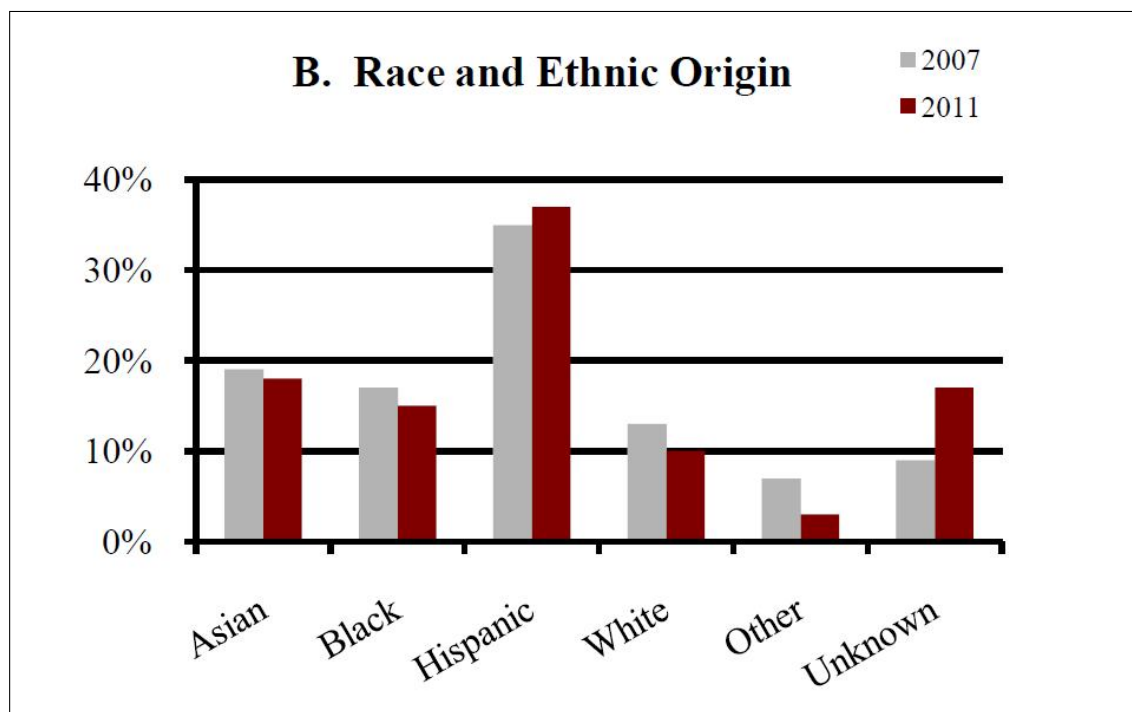


FIGURE 8.1: LaGuardia College Students by Race and Ethnic Origin 2007 - 2011

**Discussion:** (1) What do the above statistics tell you about our student population?

**Answers may vary but should include the fact that the college is very**

**diverse.**

(2) How do you think these statistics should affect or change your tutoring?

**Answers will vary but should include statements that tutors must be sensitive to students' differences. Since they stem from so many different countries, they will speak different languages and may have problems expressing themselves in English. Also, because of our multicultural nature, when doing group work tutors should encourage students to work in multicultural groups that reflect the nature of our college.**

**Definition:** "Cultural diversity or multiculturalism is based on the idea that cultural identities should not be discarded or ignored, but rather maintained and valued. The foundation of this belief is that every cultural and race has made a substantial contribution to American history." (American Multicultural Publications, Washington Cross, PA Copyright 2007-2012, [www.diversity-book.com/what-is-cultural-diversity.html](http://www.diversity-book.com/what-is-cultural-diversity.html)).

LaGuardia, as an institution prides itself on its cultural diversity. Besides students who are immigrants who are either permanent residents or new citizens, our college attracts a large percentage of international students - students who have come to the US to pursue their educations and then plan to return to their home countries. The college, through its courses and numerous on-campus college-wide events, attempts to create an atmosphere in which all students, regardless of their differences, feel comfortable and accepted. It encourages the appreciation and understanding of all of its students' diversity. Evidence that LaGuardia places great emphasis on promoting cultural diversity may be found on its website ([www.lagcc.cuny.edu](http://www.lagcc.cuny.edu)). On it, you will find that many faculty members like our students stem from a wide variety of cultures, ethnicities, races and speak many different languages. In addition, many faculty emphasize the importance of addressing multiculturalism in their courses. Information about these courses as well as articles that address this issue, written by both faculty and students, may be found there. Another source can be found at [2]. If you have problems with a cultural diversity or discrimination issue, there is an office at LaGuardia that may help you (Office of Legal Affairs Compliance and Diversity, contact (718) 482-5077).

**Question:** How can API tutors in their sessions help their students understand our college's cultural diversity and promote understanding amongst its students?

**Again, answers will vary, but should include the idea that tutors should**

**encourage multicultural groupwork and be sensitive to students' needs as they relate to each other and to them.**

### Answers to Activity 3.2:

Evaluate the following activities as promoting cultural diversity (P) or not (NP):

1. Inviting students to bring snacks to share that reflect their cultural or ethnic backgrounds. **P**
2. Telling students that they must forget about what they learned in their home countries and concentrate on becoming 'Americanized.' **NP**
3. Encouraging or even assigning students to groups that are diverse. **P**
4. Asking students if they were taught to solve a math problem differently in their home country and if so, explaining how. **P**
5. Have students, when they introduce themselves, provide some information about their countries of origin and backgrounds. **P**
6. \_\_\_\_\_  
\_\_\_\_\_
7. \_\_\_\_\_  
\_\_\_\_\_

### Answers to Activity 3.3:

The following is a cloze exercise about your responsibilities as a tutor. Fill in the blanks.

1. Try to **talk or meet** with your professor before the semester begins. Give him/her the introductory **letter** that is in your folder. Ask him/her for a **few** minutes during the first or **second** class to have students **complete** the survey.
2. Also, try to meet with your **professor** on a regular basis. Ask him/her for any old **tests** or worksheets that you can **use** during your sessions.

3. You must **attend** the weekly **1.5** hour training meetings. During these meetings, you will receive **additional** training, and be able to **share** your concerns and **triumphs**.
4. Become a mentor/**coach** to your students. Try to establish a friendly **relationship** with them. For example, if students **miss** a session, it is nice to tell them that you **missed** them and encourage them to **return**. Be careful, however, close personal friendships or **personal** relationships are **not** appropriate. If you are attracted to someone attending your **sessions**, hold your feelings until the **end** of the semester.
5. Be careful: Never show **favoritism** to any one student for **any** reason. It will make other students **suspect** that you are unfair and they will **stop** attending your sessions.
6. Keep your **folder** organized and **updated** for weekly check ups that are done on **Wednesday** before our meetings.
7. Fill out your planning log **before** your sessions, making a **detailed** plan and using it as a tool. If you e-mail it to your **students**, it can serve to **improve** your attendance. Send us a **copy** as well, please!
8. Make sure that **students** sign in for each **API** session. We need this **information** for collecting **data** (A sample attendance form can be found in your **folder**, and in figure **5.2** of this manual).
9. Create a flier early in the **semester**. This too will promote **attendance**.
10. Attendance at our **training** meetings on **Wednesdays** is required. No **unexcused** absences are permitted. Keep in mind that you are being **paid** for attending them. If you must be **absent**, you must get permission **ahead** of time, unless you have an **emergency**. In that case, you must **notify** us as **soon** as possible. More than **two** unexcused absences will be held against you and affect your **rehiring**.
11. Attend **all** classes. It will help you to **understand** the needs of your **students**. Once again, you must **notify** us and get **excused** for any absence from class.
12. Be sure to get the **signature** from the professor certifying your attendance in the class and **submit or bring** it to our **training** meeting.



13. Attend all of your **sessions**, notifying us about any **cancellation** or time change, both temporary and **permanent**. We **need** to know where you are.
14. **Never** take your folder home. Instead, just **remove** the pages you need and then **replace** them later. The **information** in your folder is extremely **important** for us. We can't afford to **lose** it.
15. A **session** in which no **students** attend, cannot be **counted** as a regular session. You will have to **make** it up!
16. Sessions must be held **frequently**. Our students need **distributed** practice, not massed practice. This means that it is not **OK** to have a 3 hour session one day and then not have any more until the **following** week.
17. Write a short **biography** for our website. It will **add** to the 'flavor' of your photograph and give **students** a better **idea** of who you are!
18. Please feel free to **speak** to one of us, if you **have or experience** any problems that you don't want to **share** with the group at a meeting. We are both here to make API a **learning or successful** experience for you so that you will want to continue as an API **tutor or leader**.

## 8.5 Chapter 4 Answers

### Answers to Activity 4.1:

**Our strategies for improving attendance answers can be found in Activity 4.2**

### Answers to Activity 4.2:

The following is a list of strategies that can help to improve attendance. Some of them are best performed by you, some by your professor, others by the API staff, others by any combination of the three. Next to each strategy, place a **T** if it is best performed by the tutor, a **P** if best performed by the professor, an **S** if best performed by the API staff. Place more than one letter next to a strategy if it can be performed by 2 or 3 of the above. We have done item 1 for you as an example:

1. Choose the best time for the session based on students and your schedule keeping in mind that the times just before and after a class are best: (T).

2. Announce API in class: **T and P**
3. Provide old tests and worksheets: **P**
4. Announce the plan for each session in advance by flier, e-mail, verbally and/or by Blackboard: **T**
5. Get to know the students in your class. Learn their names. Become their friend: **T**
6. Visit a session sometimes: **P and S**
7. Give extra credit for frequent attendance at sessions: **P**
8. Keep in continuous contact with professors: **T and S**
9. Include the tutor in Blackboard accounts as an assistant: **P**
10. Create an e-mail group and e-mail students frequently with session previews, session times and rooms and any changes that you have put into place: **T**
11. Provide technical assistance: **S**
12. Ask about missing students. E-mail them: **T**
13. Provide material for sessions from previous tutors' handouts: **S**
14. Involve the professor by meeting with him/her: **T and S**
15. Include strategies for improving attendance in the training sessions: **S**
16. Give partial reports to the professor: **T and S**
17. If the professor uses group work in class, become an assistant: **T**
18. When a student who is a 'regular' at your sessions, misses one or two, ask him/her why there was a change: **T**
19. Ask the professor for copies of old tests and/or a list of important topics: **T**
20. Be prepared with a session plan for each of your sessions: **T**
21. Ask tutors if they have concerns or problems that they wish to discuss privately: **S**

22. Be flexible: If students are concerned about a particular problem they are having, put aside your lesson plan for part of the time: **T**
23. If students compliment you on your session, tell them to tell their classmates: **T**
24. If your class has a lab, circulate, helping individuals or groups of students. This will help you to get to know them. Remind them if they have questions or concerns about your sessions. **T**
25. \_\_\_\_\_ : \_\_\_\_\_
26. \_\_\_\_\_ : \_\_\_\_\_
27. \_\_\_\_\_ : \_\_\_\_\_
28. \_\_\_\_\_ : \_\_\_\_\_
29. \_\_\_\_\_ : \_\_\_\_\_

### Answers to Activity 4.3:

Use some or all of the following strategies to improve students' learning. Then see if you can explain why this is a worthwhile strategy:

1. When time runs out in a session, suggest that your students complete what they are doing at home and e-mail their results to you.  
Why? **Often time runs out in a session. This gives you, the tutor, the possibility of expanding learning time. Not all students will complete what they started, but even if a few do, you have been successful.**
2. When you give students an activity, always give them a time limit. You can always extend it, if need be.  
Why? **Without a time limit, students have the possibility of drifting off into other activities - such as texting, 'Facebooking,' or other non-relevant activities.**
3. Provide 'waiting time,' by asking "Who has the answer?" rather than "What is the answer?"

Why? **Without ‘waiting time,’ only the fastest students have an opportunity to answer questions or solve problems. If this continues, the students who need more time will give up and stop trying.**

4. Ask “how” questions as well as “what” questions.

Why? **‘How’ questions are very important, since they require higher level thinking.**

5. When one student gives an answer or solves a problem ask the others, “Do you agree?”

Why? **Asking the question, “Do you agree?” requires others to think about the answer or solution and therefore involves them.**

6. Ask your students to create a quiz in groups. Then have them switch their quizzes and answer them putting their questions and answers on the board to share them.

Why? **Creating a quiz requires your students to review their notes and decide what in the course is important to know and learn. Then asking them to come up with answers also provides them with practice finding answers.**

### Answers to Activity 4.4:

Review Activity: The following cloze is designed to review API recommended behaviors and expressions.

1. Compliment **publicly**, criticize **privately**.
2. Always try to find something **positive** to say to a student, even if you have good reason to criticize. Example: To a student you know is not doing the homework, “I realize you are having trouble doing the homework, but I know you want to succeed in this course, so I would urge you to at least try.”
3. Avoid using the word “easy,” because **the word ‘easy’ infers that students who are having trouble are not smart, otherwise they wouldn’t be having difficulty. It is a ‘put down.’** Instead use the following words, “This problem is **doable**, it just may take you some time to figure it out.”
4. When criticizing a student use “I” messages, not “**you**” messages. Example: “I am surprised that you are not doing well. Can you help me figure out why?”

5. Always be kind. **Treat others** how you would like to be **treated**.
6. Think of how certain people were **kind or helpful** to you when you were learning something **new or difficult** and model yourself after them.
7. When a student is discouraged and says, “I just can’t do it,” or “I don’t get it,” remember to add the magic 3 letter word **‘yet’** that can encourage and give hope.
8. Remember that in order to **succeed**, we must sometimes fail first and learn from our **mistakes**.
9. Practice being **patient**. Count to 10, 20, even 100 when you feel yourself losing patience with a student who is having **difficulties**.

#### Answers to Activity 4.5:

Statements that Encourage (or Discourage) Students: Label the following statements as ‘heuristic’ - (H) statements that encourage learning or ‘discouraging’ (D) statements. If you label it D, tell how you would improve or change it.

- (a) “You are always late (absent). With this attitude, I don’t think you’ll ever succeed.” Answer: **D**.  
Improvement? **“You are often late. I am sure you want to succeed and do well in this course and this lateness can prevent you from doing so.”**
- (b) “You’re doing well. But I know you can do better.” Answer: **H**.  
Improvement? \_\_\_\_\_.
- (c) “This problem is so easy. I can’t believe you can’t get it.” Answer: **D**.  
Improvement? **“This problem can be challenging for some. Don’t give up. You’ll get it.”**
- (d) “This course is challenging. It involves a lot of work, but it is ‘doable.’ I know. I struggled and completed it successfully.” Answer: **H**.  
Improvement? \_\_\_\_\_.
- (e) “Why didn’t you come to my session yesterday? You’re never going to succeed if you don’t change your ways.” Answer: **D**.  
Improvement? **“We missed you at my session yesterday. What was the problem?”**

- (f) “I’m sorry you couldn’t make it to my session. I’m sure you had a good reason. I do hope that you will come to the next one. Will you?” Answer: **H**.  
Improvement? \_\_\_\_\_.
- (g) “I agree with you. The reason you are doing poorly is because the professor is bad and doesn’t teach anything.” Answer: **D**.  
Improvement? **“I know you are doing poorly. Let’s work together and find a way for you to do much better. The first step is to come to my sessions.”**
- (h) “I realize you’re unhappy with the professor but my job is to help you do better. Come to my sessions and you may be surprised how much better you can do!” Answer: **H**.  
Improvement? \_\_\_\_\_.
- (i) (After explaining a problem) You say: “Do you understand?” Answer: **D**.  
Improvement? **“Now that I’ve done this problem, I’d like you to try the next one on your own. I’ll help you if you get stuck.”**
- (j) “You are just an impossible student and will never succeed. I know it. The only hope you have is that you are good looking.” Answer: **D**.  
Improvement? **“You just have to work harder and you can succeed.”**

### Answers to Activity 4.6:

For the following students’ statements put in your best response:

- (a) Student says, “I can’t do it.” You say: **“That may be true, but you just can’t do it yet! Be patient. Don’t give up!”**
- (b) Student says, “No one in my family is good in math. That’s why I can’t do this problem.” You say: **“You can be the first in your family to do well in mathematics. It’s just a matter of working hard, not bad genes.”**
- (c) Student says, “I’m working 50 hours a week besides going to school full time. That’s why I can’t come to your sessions.” You say, **“You might want to do yourself a favor and cut back your working hours. After all, if you have to repeat this class, think of how much time and money you will have wasted.”**

- (d) Student says, “The teacher doesn’t like me. That’s why I’m failing.” You say: **“I’m here to help you. Let’s concentrate on how you can do better and pass this course with ‘flying colors’.”**
- (e) Student says, “It’s not what you know, it’s who you know that decides who succeeds.” You say: **“That may be true sometimes, but many, many people in this country have succeeded based on what they know, not who they know. For example, look at President Obama (or anyone else for whom this is true!)”**
- (f) Student says: “I know how to do this problem. I just can’t explain it.” You say: **“I am sure that may be true, but on an exam, that answer will not get you anywhere. It is not enough. You have to be able to explain it so the professor sees you really know it.”**
- (g) Student says: “The teacher is so bad. That’s why I can’t learn this stuff. Don’t you agree?” You say: **“I am not here to discuss the teacher. I am here to help you learn the course material and succeed.”**
- (h) Student says: “I haven’t been going to class because I know that you can teach me what I need to learn to pass.” You say: **“You must go to class. Every class you miss, means you are missing valuable instruction that you’ve paid for. These API sessions are meant for practice and review, not for teaching new material.”**
- (i) Student says: “I just want to pass this class. I don’t care if I get a D.” You say: **“A ‘D’ is not much better than an ‘F’. It brings down your G.P.A terribly and if you want to transfer, the course will not count at all.”**
- (j) Student says: \_\_\_\_\_. You say: \_\_\_\_\_.
- (k) Student says: \_\_\_\_\_. You say: \_\_\_\_\_.
- (l) Student says: \_\_\_\_\_. You say: \_\_\_\_\_.

### Answers to Activity 4.7:

As a model student, one who has mastered how to be a good student, you know what is involved in excelling in college. The cloze exercise below is just intended as a review for you, not for your students. You could also ask your students to fill

it out and review the answers with them.

**In class:**

- (a) Pay **attention**. Being awake and aware is **crucial or very important**.
- (b) Ask **questions**. This is a sign that you are thinking.
- (c) Take **notes**. Writing can **increase or improve** your learning.
- (d) Avoid **social** conversations.
- (e) Turn off your **cell phone**. Socializing can wait.
- (f) Be on **time**. Lateness means you might be missing **vital or important** information.
- (g) Don't **miss** class unless you have a **serious or important** reason. If you must, get the **notes** you missed from a **serious or good** student. Sit in **front** of the class. Doing so will help you pay **attention**.
- (h) If possible, get to **know** the professor. Visit him/her during office **hours** if you have questions or concerns.
- (i) While taking notes try to **decide** what is important so you know what you should **write**.
- (j) If you become distracted during **class**, have to **leave** for a few minutes, or don't understand something, make a **note** of it in your notes by putting a **question** mark or leaving a **blank** space.

**Outside of class:**

- (a) Do the **homework** even if it will not be **graded**. It will provide you with good **practice** and preparation for **tests**.
- (b) Review your **notes** after class. Fill in what you **missed**.
- (c) Get enough **rest**. If you are tired, you will not be able to fully **pay** attention.
- (d) Eat **enough**. If you are hungry, you will not be able to **pay** attention in class.



- (e) Plan your **study** time, splitting it up into **small** units.
- (f) Get **help** if you are having trouble.
- (g) Study the **syllabus**. It will give you a good **overview** of the course and what is **required or important** to learn.
- (h) Do the **homework**. Don't assume that lectures will be **enough** to do well.
- (i) Commit to extra **study** sessions besides doing homework.
- (j) Attend **any** study sessions if they are available. These are not just meant for failing **students**.
- (k) Go on the **Web** for additional **information or material**. The Internet has a lot of valuable **information**.
- (l) Limit **television, Facebook or other**. It is good for **relaxation** but is also a **big** time waster.
- (m) Be **aware** of your **grade or performance** in the class at all times. This will help you to know how you are **doing** in the course and if you need **extra** help or if you should **drop** the course.
- (n) Try to **apply** what you are studying to **other** courses and to what you already **know**. This will provide you with a reference for what you are **doing** and how it fits into what you already know and will help you **learn** the material.
- (o) **Test** yourself when studying to see if you really know the **material**. This will help you know what you need to **learn** and if you need **extra** help.
- (p) If there is no API support for the course, consider studying with other **students**. Group work can be extremely **helpful, valuable or useful**.

#### Answers to Activity 4.8:

The following are examples of situations that have occurred in API sessions or in classes that can make your life as a tutor a challenge. For each of them, role play the event with one of you taking the role of the recalcitrant student, the other the tutor. Then switch roles. Afterwards, together describe the best way or ways of handling this situation. Use the spaces available for notes.

- (a) You are presenting mathematics problems to the group. You divide the problems amongst the students and assign each of them a problem to do on the board. The first student you ask, says, “You do it. Do it now! Don’t ask me to do it.” What do you do?

**To handle this situation, you must be fair and strong. Students often feel uncomfortable coming to the board. They feel unsure and exposed and afraid that they will make a mistake and everyone will laugh. Here are some suggestions of statements to make to the student: (1) “Just try it. I will not be taking the tests and I want to see that you can do this problem so that you will do well.” (2) “Try it. This is a good place to make mistakes.” (3) If the student still persists and refuses, ask if another student is willing to volunteer to work with this student so that they can both put the solution to the problem on the board. (4) If no one volunteers, you can say, “Since no one feels comfortable doing this problem and I want to be sure that all of you can, I will do it. But right afterwards, I will give you another one that is similar and I will expect all of you to try it.”**

- (b) A student stays after the session. You know this student is having particular difficulty with the course and is struggling. She says, “I don’t want to come to these sessions. I want private tutoring and I will pay you. How much do you want?” What do you do?

**This situation occurs quite frequently. Students don’t want to come to sessions because they are embarrassed by their level of knowledge. But the bottom line is that API tutors are explicitly not permitted to accept payment for private tutoring. Your answer should reflect a variation on the following suggestion: “I realize that you would prefer to work alone and pay me, but I am not permitted to do private tutoring. Just come to the sessions and at least try them.”**

- (c) A woman student (you are a male) is the only one to come to your session. You sit next to her as you review a test with her. She is clearly having trouble. She says, “I need much more help. Can you come to my house to help me?” She continues, “If you do, I will make it up to you.” (As she says this, she touches your leg under the desk.) What do you do?

**This situation like the one above is one of a desperate student. In kind and gentle terms, move away and explain that you are not**

**permitted to offer any private tutoring! If the situation persists, you can tell her that if she doesn't stop, you will report her for sexually harassing you.**

- (d) You ask your students to work in groups. You ask one student to sit with another. He says, "I won't work with him." You take the student aside, outside the classroom and ask him why and he responds, "I don't like Chinese, Japanese, Jews, Arabs, Blacks, Hispanics (pick one)." What do you do? Describe how you might handle this situation?

**Fortunately, this situation is rare. It is important to tell the student privately that his (or her) behavior is racist and is not acceptable. If s/he still refuses to work in groups, don't insist and let the student work alone.**

- (e) You divide your students into groups. One student says, "I don't work in groups." What do you do?

**First, ask the student (privately) why and listen. Then try to persuade the student that group work is very useful and valuable. If the student persists, don't insist. He or she may change later on. It is more important that the student attend your sessions.**

- (f) Students during the session start complaining about their professor. For example, "Our professor doesn't know how to teach. He makes things complicated." Then they follow up saying, "Our tutor - you - are way better than our professor. Why can't you teach the course instead?" What do you say? (written by our API tutors - Yassine Wardei, Debajyoti Paul and MD Hafizur Rahman) **Never engage in this type of conversation. The worst thing is to agree or disagree. This information could go right back to the professor. Tell the students that if they are unhappy, you are sorry, but there is nothing you can do. Your job is to do the best you can to see that they do well in the course.**

#### **Answers to Activity 4.9:**

For this activity use the bar chart in figure 4.1.

1. What information do you get from this chart?

Answer: **This chart compares students at LaGuardia in the fall**

2010 semester as to whether they were day, night, weekend or mixed schedule students. Also, whether they were full or part time students.

2. List three (3) conclusions you can draw from it:

- (a) **There are more day students than night or weekend students.**
- (b) **There are more part time students than full time students, except for the 'mixed' category.**
- (c) **A good percentage of students both full time and part time fit the 'mixed' category - that is they attend classes both during the day, the weekend and the evening.**

3. What was the most surprising information you drew from it?

Answer: **Answers will vary - the following is only one suggested answer: Only a very small percentage of students attend LaGuardia as weekend students. It is probably not possible to attend full time and go only on weekends. At some colleges, a good percentage of students attend full time, attending only on weekends.**

### Answers to Activity 4.11:

See if you can fill in the blanks below as a self-test without looking back:

1. There are different types of visual displays described in this section. They are:

**Types of visual displays: tables, charts, time lines, graphs, models and diagrams.**

2. A table is any way of displaying **information** in rows and **columns** without drawing any conclusions.

3. A chart is a visual **representation** that helps us to see relationships. List three types of charts:

**Graphs, bar graphs, pie charts, scatter plots, time line charts, box plots.**

4. List below one type of visual display you might use in your tutoring:

The subject you tutor: (or use API) \_\_\_\_\_.

Your preferred type of visual display: \_\_\_\_\_.

Explanation: \_\_\_\_\_.

Create a visual display on a separate piece of paper as an example.

**Answers will vary depending on the subject being tutored.**

### Answers to Activity 4.12:

Read the following statements that have been attributed to the world famous scientist, Albert Einstein. Answer the following question for each statement: (a) Rephrase the quotation in your own words. (b) “What does this statement mean? Explain.”

#### Statements attributed to Albert Einstein:

1. “YOU NEVER TRULY UNDERSTAND SOMETHING UNTIL YOU CAN EXPLAIN IT TO YOUR GRANDMOTHER.”

Acceptable answer: (a) **Until you can explain something to someone else, you do not really understand it.** (b) **If a student says, “I know know it but I can’t explain it,” the meaning is clear: This student doesn’t really understand it and would not be able to answer this question on an exam.**

2. “WE DON’T KNOW ONE PERCENT OF A MILLIONTH OF ANYTHING.”

Acceptable answer: (a) **Our knowledge of the world around us is infinitesimal.** (b) **This statement means that we should be very careful when giving answers and being too sure of our knowledge. A corollary is: We should always try to learn more to improve our scant knowledge.**

3. “IF WE KNEW WHAT WE WERE DOING, IT WOULD NOT BE CALLED RESEARCH, WOULD IT?”

Acceptable answer: (a) **Research involves searching for information and often the researchers are even ‘in the dark’ and don’t know what they are doing.** (b) **This statement means that scientific research is often just ‘muddling’ through. Research can come up with right answers as well as wrong answers and until there is a preponderance of information from research that is replicated, we should be very careful about accepting it as ‘the truth.’**

4. “IT’S NOT THAT I’M SO SMART, IT’S JUST THAT I STAY WITH PROBLEMS LONGER.”

Acceptable answer: (a) Einstein is saying here that it is not that he is so much smarter than others when he is solving problems, but that he is willing to put in many more hours in trying to solve them. (b) This statement is related to Malcolm Gladwell’s term ‘10,000 hours,’ in, “The Outliers.” People who succeed in inventing new products or discovering new information know that they need to put in at least 10,000 hours of effort. Most of us won’t apply ourselves even a fraction of this amount of time! Einstein understood this principle of learning long before Malcolm Gladwell was even born!

### Answers to Activity 4.13:

Refer to the following paragraph:

#### What is API?

Academic Peer Instruction is a variant of Supplemental Instruction (SI), a nationally recognized non-remedial peer tutoring program that targets “high risk” or difficult courses instead of failing students. SI is presently in place in almost 1000 institutions of higher learning nationally and abroad. This tutoring program has been assisting students at LaGuardia since the spring semester of 1993.

1. Construct a handout that will serve as a cloze exercise based on the above paragraph about API (also found in section 1.1).

The cloze will vary depending on which words were blanked. It is important not to remove too many words so that students lose the ability to figure out what is needed.

2. Complete the cloze without looking at the original. What did you learn about the cloze process from developing this cloze and then completing it?

Generally, the cloze process is a very good test of knowledge. It also tells the student which information s/he needs to go back and learn.

**Answers to Activity 4.17:**

Together with your group, list any information a syllabus may contain:

1. **Hours of instruction.**
2. **Name of professor and contact information as well as office hours.**
3. **Objectives of the course.**
4. **Important dates of exams, quizzes.**
5. **Assignments, projects, homework and their due dates.**
6. **Topics to be covered in order listed by days or weeks.**
7. **Grading criteria and weights.**
8. **Attendance requirements and other student responsibilities.**
9. **Other supplementary material to be used for studying.**

**Answers to Activity 4.19:**

A sample precalculus syllabus is provided in figures 4.4-4.7. Together with your group, in the space below construct a 10 question informal quiz that you might use to serve as a way of getting students to understand the important information that is found in this syllabus. Be sure to include questions that cover all six (6) levels of Bloom's taxonomy as found in section 2.4.1.

**The following questions are suggested. Others may also be relevant and correct.**

Question 1: **What is the name of this course and its catalog name and number?** (level 1: Remembering)

Question 2: **How will my grade be determined?** (level 1: Remembering)

Question 3: **What parts of this course are most important in terms of my achieving a good grade in this course?** (level 2: Understanding)

Question 4: **What are some of the topics that will be taught?** (level 2: Understanding)

Question 5: **How does the knowledge gained from this course fit in with mathematic courses I have taken before and may take later?** (level 3:

**Applying)**

Question 6: **How will I be able to apply what I've learned in this course to real life situations and problems?** (level 3: Applying)

Question 7: **What are the difference between the Instructional Objectives listed and the Performance Objectives?** (level 4: Analyzing)

Question 8: **What do you think will be the value of this course to you? Explain.** (level 5: Evaluating)

Question 9: **Why are you taking this course? What do you hope to get out of it?** (level 5: Evaluating)

Question 10: **Why do you think humans have developed the subject: calculus?** (level 6: Creating)

**Answers to Section 4.10:**

Many students avoid the textbook. They don't read it because \_\_\_\_\_.

**Some possible answers:** (a) They can't afford to buy the book and don't explore alternative means of reading it, such as reading it in the library or looking to buy it online to find a less expensive copy; (b) They do buy it, but then find it intimidating and overwhelming. It is too lengthy and heavy. They don't think they'll be able to understand it and think that they will manage with just the class lectures; (c) Their reading ability is poor. When they have tried reading it, it has taken too much time to read and they have had to use the dictionary too much to get anything out of it; (d) They tried reading it and found its format and organization daunting. Too much information is covered in each chapter; (e) The professor never refers to it in class. The reading assignments don't seem to be important.

**Answers to Activity 4.21:**

(Sample Activity) For this activity use the following excerpt from the textbook *Thinking Critically* by John Chaffee [5].

1. In groups of 2 or 3, take notes on this textbook excerpt using this formula as a guide (Reading = Translation + Conversation).
2. Be prepared to share your notes.



3. We will also discuss what you learned from this activity and how you might use it with your students.

### **A Roadmap to Your Mind**

This book is designed to help you become an educated thinker by providing you with many opportunities to use your mind in ways that will strengthen and elevate your thinking abilities. Many of these abilities-such as working toward your goals, solving problems, or making intelligent decisions-will already be familiar to you. Others, such as understanding the conceptualizing process or constructing rigorous extended arguments, will be less so. But whatever your degree of familiarity, and no matter what your level of expertise, you can always improve your thinking abilities, and doing so will enrich your life in countless ways. Here is a brief preview of the thinking abilities you will be studying-the very same abilities that you will be using to think with as you study them!

- Establishing and achieving your goals
- Becoming an intelligent and effective decision-maker
- Becoming a confident and productive creative thinker
- Becoming an independent, informed, and open-minded critical thinker
- Learning to analyze and discuss complex, controversial ideas in an organized fashion
- Becoming a powerful and successful problem solver
- Becoming familiar with the perceptual “lenses” through which you view the world, and understanding the way these lenses shape and influence your entire experience
- Learning to develop informed well-supported beliefs and achieve authentic knowledge of important issues
- Learning to critically analyze information and images presented in the media, the Internet, and popular culture
- Developing your ability to understand and use language in an effective way in order to express your ideas clearly and coherently

- Learning to form and apply concepts in order to understand the world in a clear, sophisticated way
- Developing your ability to relate and organize concepts in complex thinking patterns
- Learning to think critically about ethical issues and moral beliefs
- Learning to construct logically valid and compelling arguments to support your point of view
- Learning to evaluate the soundness of deductive and inductive arguments and detect illogical ways of thinking (“fallacies”)
- Developing your ability to make enlightened choices and work toward creating a meaningful and fulfilling life

Of course, these abilities do not operate in isolation from one another; instead, they work together in complex patterns and relationships. So, for example, in the remainder of this first chapter, we’re going to explore three core areas that are central to being an accomplished thinker and living a successful, fulfilling life:

- Establishing and achieving your goals
- Becoming an intelligent and effective decision-maker
- Becoming a confident and productive creative thinker

Achieving your full potential in these areas involves all of the other thinking abilities that you will be studying in this book. In this chapter you will be laying the foundation for achieving your goals, making effective decisions, and learning to think creatively. However, your abilities in these areas will continue to grow as you develop and practice the full range of your thinking capabilities included in this text.

**(Notes will vary using the formula: Reading = Translation + Conversation.)**

Text title: “A Roadmap to Your Mind:”

**Sample Translation: A way to understand what is on my mind.**

**Sample Conversation: Is the author saying that our lives are journeys?**

Sentence 1: “This book is designed to help you become an educated thinker by providing you with many opportunities to use your mind in ways that will strengthen and elevate your thinking abilities.”

**Sample Translation:** This book will help me become a more thoughtful and productive thinker. It will give me the possibility of using my mind to improve my ability to think.

**Sample Conversation:** I didn’t think that I could improve my thinking. This statement intrigues me. I am very interested in seeing how I could do so.

Sentences 2, 3 and 4: “Many of these abilities - such as working toward your goals, solving problems, or making intelligent decisions - will already be familiar to you. Others, such as understanding the conceptualizing process or constructing rigorous or extended arguments will be less so. But whatever your degree of familiarity, and no matter your level of expertise, you can always improve your thinking abilities, and doing so will enrich your life in countless ways.”

**Sample Translation:** Many of these methods of improving my thinking, such as my ability to make good decisions or being able to solve problems, I may already know. Others, like being able to build strong and long arguments, I may not be familiar with. But it doesn’t matter, people can always improve their ability to think and doing so will give them a better life.

**Sample Conversation:** I am still intrigued. I never thought I’d be able to really improve my ability to think. Somehow I had the impression that these abilities were ‘built in,’ and related to genetics and could not be improved upon. This book continues to tempt me and I want to go on reading.

Sentence 5: “Here is a brief preview of the thinking abilities you will be studying - the very same abilities that you will be using to think with as you study them!”

**Sample Translation:** The next bullet points are going to give me a preview of what I will be studying as it relates to improving my thinking. I will also be using these abilities at the same time.

**Sample Conversation:** I am going to like this book. It appears to be clear and well organized. I am going to continue reading and thinking about what it says.

Bullet points:

**Sample Translation:** This is a long list of how this book will help me improve my thinking abilities. They range from helping me achieve my goals, helping me make good decisions, teaching me how to become a creative and critical thinker who is open-minded, learning to analyze and discuss controversial topics, becoming a better problem solver, learning to analyze the way I now view the world, helping me improve my use of language so that I can better express what I want to say, learning how to analyze and expose illogical ways of thinking and finally help me make better choices so my future life will be more successful and happier.

**Sample Conversation:** Wow! I am impressed by the goals of this text. I am also curious to see if I can apply these objectives and indeed improve my own life. I want to continue reading!

#### Answers to Activity 4.24:

The following is a warm-up activity that could be used for one of our training sessions: “In groups of 2 or 3, write 7 concepts or vocabulary words that are important for an API tutor to know and understand.” Put them on the board together with their definitions. Be sure to identify yourselves. You have 7 minutes to complete this activity. You may use your manuals if you wish!

Write your words and definitions here and then put them on the board:

**Answers here will vary as there are many more than seven words or terms in this manual. Here are some representative examples:**

1. **10,000 hours:** Concept coined by Malcolm Gladwell in his book, “The Outliers,” to estimate the number of hours it takes to become an expert in an area.
2. **Bloom’s Taxonomy:** A method developed by Benjamin Bloom to write and classify ideas and questions according to their level of difficulty and abstraction.
3. **Jeopardy:** A game made famous by its presence on television that tests knowledge. It can be used to great advantage to test knowledge of a subject area.

4. **Warm-up Activities:** Activities that can be completed in a short period of time at the beginning of an API session that test knowledge of subject matter to prevent the loss of valuable time.
5. **Redirecting Questions:** A method of refusing to answer students' questions and instead turning them back to students - both the student who asked the question as well as other students. This method encourages students to engage in 'active learning.' (see section of this manual and the next definition. Questions are answered by a tutor only on the rare occasion when no one can answer the question.
6. **Active Learning:** A basic principle of API. What this means is that all activities of an API tutor should engage students so that they learn to construct their own knowledge, with the tutor and/or other students, so that they ultimately become 'self-learners' - people who can teach themselves.
7. **Cloze:** A method of testing comprehension and knowledge simply by removing key words from a text and requiring students to 'fill in the blanks.'

#### Answers to Activity 4.25:

Form groups of 2, 3 or 4 and write one or two warm-up activities you might use with your students. These activities must of course be subject specific so your groups should be tutors who are tutoring the same course! (Your activity can be simply one or two problems to solve, formulas to write or terms to define.)

Write your activity (activities) here:

**Activities will vary, but they should all meet the following criteria: (1) Can be completed in a short amount of time (10-12 minutes), (2) Have a defined task that can be measured as correct or incorrect.**

#### Answers to Activity 4.26:

Based on what you have learned in this chapter complete the following informal quiz based on the levels of questioning in Bloom's Taxonomy:

Level I question: Knowledge: What is the title of this chapter?

**Improving API Sessions**

Level II question: Understanding: Explain the difference between an activity such as Jeopardy and a methodology or technique such as Modeling:

**Jeopardy is a game with a set of rules. A methodology or technology such as Modeling is a way of getting students to understand and practice what they are learning.**

Level III question: Applying: Select one activity from this chapter such as the informal quiz, Jeopardy or other games, and explain how you might use it in one of your sessions.

**Answers will vary according to subject area.**

Level IV question: Analyzing: Based on the information you've learned in this chapter, compare and contrast API with another tutoring program you are familiar with. You may use a Venn diagram or a chart.

**API compared with the Math Lab.**

**API: Tutoring is only available for courses that have been targeted. Tutors re-attend the class section they are assigned to so they are aware of class assignments and progress. Tutoring emphasizes collaborative learning. Generally tutoring is focused on important course content. Tutoring is designed to improve all students' performances in a course. MATH Lab: Tutoring is available for all courses. Tutors do not attend any classes but are supposed to be knowledgeable in all areas. Tutoring can be group or individual. Generally, tutoring is focused on what students request. Tutoring is generally designed to be supportive for failing students.**

Level V question: Evaluating: Evaluate the methodologies and activities presented in this chapter. Which one do you think will be most useful to you? Why?

**This is definitely an opinion and therefore a subjective question. Answers will differ.**

Level VI question: Creating: Think about how API as you know it might be improved? What changes would you suggest? (This question might best be answered by experienced tutors.)

**As a creative question, suggestions for change will vary. In fact, there may be no wrong answers.**

## 8.6 Chapter 7 Answers

### Answers to Section 7.1 (API Quiz):

1. List the three (3) most important goals of the API program:

Answer: **(1) Improve grades in targeted courses. (2) Improve students' study skills. (3) Help students become better students.**

2. API is designed primarily to help students master:

Answer: **Course content.**

3. What is the best word to describe the API tutor?

Answer: **Coach or facilitator.**

4. According to API, which three (3) grades are considered to be failures in terms of academic achievement?

Answer: **D, F, WU.**

5. Why is collaborative learning or group work so important a concept for API?

Answer: **It is one of the 4 basic principles of API. It promotes active learning (the first principle) and has been shown to improve learning.**

6. What is the best range of sizes for dividing students into groups during your sessions?

Answer: **3-4 is generally the best range for forming groups. Larger groups allow for some students to sit 'on the side' as spectators and not participate as active learners.**

7. List the four (4) principles of API as developed in this training manual?

Answer: **I. Promote Active Learning, II. Foster Collaborative Learning, III. Ask Good Questions, IV. Encourage Practice.**

8. How might you deal with a very large group of students who come to your session (more than 15)?

Answer: **Divide students into groups of 3 or 4.**

9. List the items you should take with you when you go to an API session?

Answer: **(a) Your brain; (b) Your patience, kindness and courtesy;**

(c) Your lesson plan; (d) Enough handouts if you have one; (e) A blank attendance sheet; (f) Markers; (g) Your class notes; (h) Your textbook - if the class is using one.

10. How should you facilitate students working in groups?

Answer: **Divide them into groups of 3 or 4, trying to make the groups as heterogenous as possible. Have each group choose a leader. Give them a relevant assignment that can be graded as correct, partially correct, or not. Give them a time limit. Walk around to encourage them and to make sure that they are staying on task. Assign groups who are doing well to put their work on the board together with their names.**

11. List two reasons you should not group two students together?

Answer: **(a) They are married or ‘going out together,’ (b) They speak the same language, not English, (c) One student has not been attending class and is extremely behind in course material. (While it is ok to place two students who are at different levels together, it is however unfair to place a very advanced student together with a student who is barely still in the class because of absences or other reasons.)**

12. How should you deal with a student who says, “I don’t want to work in a group?”

Answer: **Ask “why?” and try to persuade the student that it is in his or her interest to work with others, but never force the issue.**

13. What should you do if the teacher asks you to proctor his/her exams or mark his/her papers?

Answer: **Politely refuse. Tell the professor that as an API tutor you are not permitted to perform either of these tasks. If the professor persists, ask him/her to get in touch with one of the API staff.**

14. What should you do if you realize that you cannot make a study session?

Answer: **Notify everyone - students and API staff. If you cannot do it yourself, have someone else post a notice on the door (We have brightly colored cancellation sheets at the API office in E115).**

15. List the four (4) best ways of getting students to attend your study sessions:

Answer: **There are other acceptable answers to this question, but**



**your answer should include at least one of the following: (1) Send informative e-mails inviting your students to come and advertising what you plan to review in the next study session; (2) Post a notice on the blackboard in the classroom that includes time, date and place; (3) Plan your sessions if possible, for immediately before and/or after class time and in the same room; (4) Find out if your professor will give a small amount of extra credit for attendance at API sessions. If you feel uncomfortable asking, request that one of the API staff do so; (5) Text your students on the day of the session reminding them that you are having a session.**

16. What is the best snack for an API meeting?

Answer: **Answers will vary!**

17. How far in advance do you need to request copies for your sessions?

Answer: **At least 24 hours ahead of time. If you have an emergency, we can make a few copies in our office.**

18. When is the best time (or times) to schedule your sessions?

Answer: **Immediately before or after the class.**

19. What should you do if you arrive in class and discover that the professor has cancelled the class?

Answer: **Hold an impromptu API study session. Many students who don't ordinarily attend your sessions will stay and this will give them an idea of what a session is like and may encourage them to start attending!**

20. What is the three letter word that can change a student's hopeless statement to a hopeful one?

Answer: **Yet.**

21. What should you say to students who refuse to do problems on the board because they are afraid they may get it wrong?

Answer: **Memorize this statement: "This is a good place to make mistakes!"**

22. What do we call the practice of refusing to answer students' questions before they try to answer them on their own?

Answer: **Redirecting questions.**

23. API is based on a nationally known peer tutoring program known as:

Answer: **SI or Supplemental Instruction.**

24. What is Cindy's boyfriend's name?

Answer: **Barry (unless she has changed boyfriends since this manual was written!)**

### Answers to Section 7.2:

Case studies: sexual harassment, diversity, academic honesty, community, and relationships.

Instructions: The following case studies are taken from real situations that have occurred here at LaGuardia and elsewhere. For each situation, role play it with members of your group. Then discuss with them what you would do. List your group's ideas.

1. There are a group of regulars in your sessions who always sit together. You can see that they consider themselves to be very smart. They often laugh at other students when they make mistakes or don't understand something. **While this does not appear to be sexual harassment, it is rude and borders on bullying and harassment. After the session take these students aside and tell them that their behavior is inappropriate and rude. No one person knows everything, yourself included, and making fun of others who know less is wrong. At first, to stop it, you might just break up the group and reassign these students to different groups. You might also, if they insist on staying in the group, ask them to stop this behavior in a nice way. If the behavior persists, remind them (privately of course) that you cannot permit this kind of belittling behavior in your session and if they don't stop, you will ask them to leave. Do bring this up with your supervisors if you need additional help with a situation like this.**
2. You find a student in your sessions particularly attractive, interesting, witty, and kind. In fact, you'd really like to go out with this student. She surprises you by approaching you, telling you that she thinks you are very 'cool' and then asks you to go to a party with her. **Tell her that you are complimented by her attentions, but that API forbids you from socializing with a student. Add that after**

**the semester is over, and if both of you are still interested, you can pursue a relationship.**

3. A student makes a racist remark in an API session. Nobody in the session is of that race.

**Speak to the student privately after the session. Tell the student that you don't permit racist statements in your sessions for any reason, and that s/he must stop. If the situation doesn't change, contact one of the API staff.**

4. A student in your sessions seems to be hanging around you and is being more attentive than normal. It seems peculiar but not particularly worrisome until one day the student follows you and tries to light your hair on fire with a cigarette lighter.

**This is clearly a very serious issue. Call security right away (Ext. 5555) and report the incident!**

5. Students in your session are discussing another difficult course they are taking. You overhear one tell the other that because of grades, his financial aid is in jeopardy so he is paying someone else to do his homework and take the exams.

**If you feel comfortable, you might speak to this student privately about his situation and what trouble he could get into. Otherwise, just ignore it. The information was not given to you and you have no way of knowing that it is in fact true.**

6. Students are self-selecting into clusters of 3-4 but you notice that there's a group of 5-6 male students and some smaller groups consisting of only two female students. When you ask a couple of the guys to split up and join each of the women's clusters, they refuse, saying that they won't learn anything because everyone knows "girls aren't any good in math and science."

**This is a difficult situation. You are dealing with a deeply held and longstanding stereotype. If you, the tutor, are a woman, you can point out, that you are tutoring this course, so the stereotype just doesn't hold. The best you can do is ask them nicely to split up and join these women on an experimental basis. If they refuse, just let it be.**

7. The instructor in your API course is a new graduate student, having just graduated from college. Your 30 minute weekly meetings with him/her seem helpful to both of you, for you to get information about what's coming up in the course, and the instructor seeks your observations about how well the students understand the material, whether there is rapport, and generally how well things are going. As the semester continues, the instructor seems to become even more open about class and begins discussing some personal matters. After a few more weeks, the instructor invites you to have dinner together.

**It is obvious that the instructor is new and inexperienced. It is important however that you refuse the dinner invitation and not engage in personal matters, keeping your discussions professional.**

8. A student makes a racist remark to his friend in an API session. A few students of that race are in the session.

**Tell the student that racist remarks are wrong and are not to be made in your sessions. Ask him/ her to stop. If s/he doesn't, notify one of the API staff.**

9. A student comes regularly to your sessions, sits in the middle of the front row, and does not participate. He seems to be involved in thinking about and following the activity but gets a little nervous about the idea of joining the collaborative activities.

**Privately ask him or her why s/he doesn't participate. Encourage him/her to participate but don't insist. Students will often change their attitudes on their own, towards collaborative activities when they begin to feel more comfortable in your sessions.**

**Answers to Section 7.1:****CAN YOU SOLVE THIS PUZZLE?**

2      7      4              7      6      2      5      7

**Answer: ‘API ROCKS.’** The answer can be reached by looking at the keyboard of a telephone. You will notice that the key for number 2 also contains the letter A which is the first of the three letters - ABC. That is why there is one dot above number 2. Moving on, the key for number 7 refers to 4 letters on the dial: PQRS. Since there is only one dot above the 7, this indicates that the letter P is meant. And so on.

**Answers to Activity 7.2:**

Einstein’s Puzzle:

This puzzle is a good “brain teaser.” Can you figure it out?

Variations of this riddle appear on the web from time to time. It is sometimes attributed to Albert Einstein who claimed that 98% of people are incapable of solving it in their heads. Some commentators suggest that Einstein created such puzzles not to test intelligence but to get rid of many of the students who wanted him as an advisor. It is not likely that there is any truth to these stories. Wherever this comes from, it is a challenging riddle.

Let us assume that there are five houses of different colors next to each other on the same road. In each house lives a man of a different nationality. Every man has his favorite drink, his favorite brand of cigarettes, and keeps pets of a particular kind.

1. The Englishman lives in the red house.
2. The Swede keeps dogs.
3. The Dane drinks tea.

4. The green house is just to the left of the white one.
5. The owner of the green house drinks coffee.
6. The Pall Mall smoker keeps birds.
7. The owner of the yellow house smokes Dunhills.
8. The man in the center house drinks milk.
9. The Norwegian lives in the first house.
10. The Blend smoker has a neighbor who keeps cats.
11. The man who smokes Blue Masters drinks beer.
12. The man who keeps horses lives next to the Dunhill smoker.
13. The German smokes Prince.
14. The Norwegian lives next to the blue house.
15. The Blend smoker has a neighbor who drinks water.

The question to be answered is: **Who keeps fish?**

Hint: A chart using Excel or a hand made chart and the process of elimination will help you solve this puzzle!

**Answer in Figure 8.2**

**Answers to Activity 7.3:**

Solve the puzzle in Figure 7.1.

**Across: 3. coaching, 6. facilitating, 8. Treisman, 9. yet, 10. modeling**  
**Down: 1. remembering, 2. Socrates, 4. practice, 5. Barry, 7. creating**

**Answers to Activity 7.4:**

Solve the puzzle in Figure 7.2.

**Across: 1. conversation, 4. translation, 6. outlier, 10. psychology, 11. Mead**  
**Down: 1. AndToce, 3. Einstein, 5. Cindy, 7. recalcitrant, 8. Gladwell, 9. syllabus**

**The German keeps fish**

	House 1	House 2	House 3	House 4	House 5
Color	Yellow	Blue	Red	Green	White
Person	Norwegian	Dane	Brit	<u>German</u>	Swede
Drink	Water	Tea	Milk	Coffee	Beer
Smoke	Dunhill	Blends	Pall Mall	Prince	Blue Masters
Pet	Cats	Horse	Birds	<u>Fish</u>	Dog

FIGURE 8.2: Einstein's Puzzle Solution

**Answers to Activity 7.5:**

API LEADER RESPONSIBILITIES.

Unscramble each of the clue words in Figure 7.3. Copy the letters in the numbered cells to other cells with the same number.

**Answers:****TREAT STUDENTS FAIRLY****NEVER DISCRIMINATE****COMPLIMENT PUBLICALLY****CRITICIZE PRIVATELY****BE PREPARED****FORM AN EMAIL GROUP****ATTEND WEEKLY MEETINGS****TWO DAYS OF TRAINING****PHRASE: GREAT TUTORING**

**Answers to Activity 7.6:**

## IMPROVING ATTENDANCE CLOZE

- (a) If your attendance is poor it is helpful to 1. **redo** the student surveys. Often 2. **students'** schedules change during the 3. **semester** so that it may be 4. **good, worthwhile** for you to change your tutoring schedule to adjust for these 5. **changes**.
- (b) If possible, a small amount of 6. **extra** 7. **credit** can be a potent aide to improving attendance. Ask your 8. **professor** if he or she is willing to 9. **give or grant** extra credit for students' attendance or if you are not 10. **confident or comfortable** doing so, ask one of us to ask him/her. With extra credit, some students will come to 11. **sessions** because they need and 12. **want** to improve their 13. **grades** and think this small increase in grade may make a 14. **difference** for them. If the professor agrees, you will need to share your 15. **attendance** with him/her at the end of the semester.
- (c) When in class, it is important to make yourself 11. **visible**. Try to 12. **sit** in a place in the room where students can 13. **see** you. The 14. **blackboard** is also an important aid. Ask the 15. **professor** for a small section of it and always write when and where your next 16. **session** will take place.
- (d) 17. **Advertizing** is one of the most important tools we have. Business people know this. They spend millions on it. We see it on television, hear it on the 18. **radio** and it is all around us daily. They know it works. Right here, make a list of five ways you can advertise your sessions so as to remind them when and where your sessions will be held: A. **e-mail**, B. **the blackboard**, C. **texting**, D. **flier**, E. **online tools such as Blackboard**.
- (e) In addition, the 18. **professor** can make a huge difference in improving your attendance. If s/he "pushes" it, you will see results.
- (f) Finally, try to be 19. **friendly** and outgoing . This 20. **attitude** can make students 21. **want** to come to your sessions. If they think you are "on their 22. **side**" and know you want to 23. **help** them succeed, you will see more of them coming to your sessions.



**Answers to Activity 7.7:**

Tips for effective and successful API sessions. A cloze exercise.

- (a) **(Seating)** The best seating is 1. **circular** because all students are 2. **looking** at each other and they can feel 3. **connected** to one another. Sit 4. **next** to your students, not behind or in front of the 5. **room** because 6. **You want them to see you as a peer, not as a teacher or professor.**
- (b) **(Questioning)** Avoid: “Do you 7. **have** any questions? Substitute with: 8. **What** are your questions? The reason for this is: 9. **It makes students think and makes students become more active learners.** Ask students: 10. “**Tell** me what you understand?” instead of 11. “**Do** you understand?” It’s important to give students 12. **waiting** time to answer questions so that 13. **more** students can respond, not just one or 14. **two** students. Try to become comfortable with 15. **them**. Don’t try to fill the air with talk all the time. It is a good idea to 16. **follow** up answers that students give with : “Do you 17. **agree**?” (addressed to other students) or “Are you 18. **sure**?” If a student says s/he cannot do a problem, say: 19. **Try**. Remember that every question can be 20. **broken** up into small 21. **pieces** and in that way, you will 22. **get** the student to 23. **try** it.
- (c) Keep in mind that our overall API goals are to increase 24. **performance or grades** and to get students to become more 25. **effective or independent** learners.
- (d) Learn to be 26. **patient**. It is not easy . Adjust your session to fit the needs of your students. All of us can cultivate and practice this desirable quality.
- (e) Give away the 27. **chalk** or marker. Have your students up at the 28. **board** as much as possible. Do not let them be 29. “**couch** potatoes.”
- (f) Use illustrations as much as possible. Was it the Chinese who said? 30. “**One picture** is worth a thousand 31. **words**.”
- (g) When you use visual material, always leave 32. **blanks** that students have to 33. **fill** in, thereby labeling the picture or diagram.



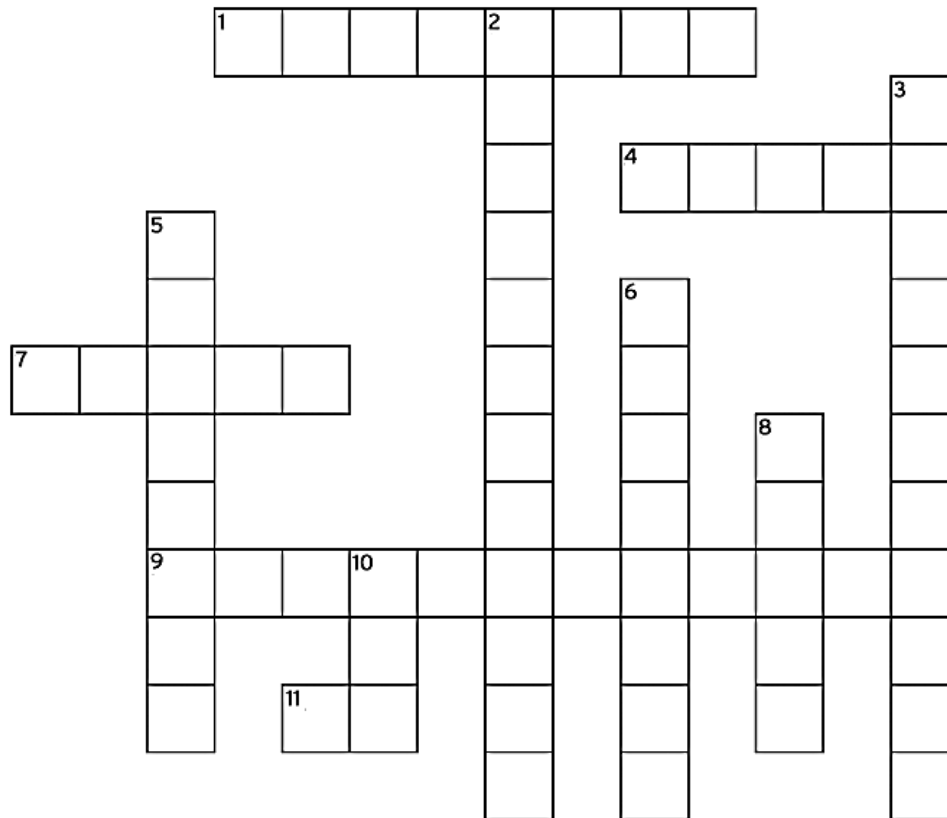
# Bibliography

- [1] (2011-2012). *LaGuardia Community College Catalog*.
- [2] Banks, J. and C. Banks (2009). *Multicultural Education: Issues and Perspectives*. Wiley.
- [3] Bloom, B. (1954). *Taxonomy of educational objectives*. Number v. 1 in Taxonomy of Educational Objectives. Longmans, Green.
- [4] Bruner, J. (1966, 0). *Toward a Theory of Instruction*. Cambridge, MA, USA: Harvard University Press.
- [5] Chaffee, J. (2009). *Thinking Critically*. Cengage Heinle.
- [6] Colvin, G. (2009). *Talent Is Overrated: What Really Separates World-Class Performers from Everybody Else*. Nicholas Brealey Publishing Limited.
- [7] Coyle, D. (2009). *The talent code: greatness isn't born : it's grown, here's how*. Bantam Books.
- [8] Ericsson, K. A. (2007). Deliberate practice and the modifiability of body and mind: toward a science of the structure and acquisition of expert and elite performance. *International Journal of Sport Psychology* 38(5), pp. 4–34.
- [9] Ericsson, K. A., R. T. Krampe, and C. Tesch-romer (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 363–406.
- [10] Gladwell, M. (2008). *Outliers: The Story of Success*. Little, Brown and Company.
- [11] Jackson, A. (1989). Minorities in mathematics: A focus on excellence, not remediation. *American Educator*, 22–27.
- [12] Johnson, D. (1981). *Reaching out: interpersonal effectiveness and self-actualization*. Prentice-Hall.
- [13] Martin, D. (1983). *Supplemental Instruction: A Model for Student Academic Support*. Student Learning Center, University of Missouri–Kansas City.
- [14] Martin, D. C. and D. R. Arendale (1990). *Supplemental Instruction [microform] : Improving Student Performance, Increasing Student Persistence / Deanna C. Martin and David R. Arendale*. Distributed by ERIC Clearinghouse, [Washington, D.C.] ∴

- 
- [15] Mead, M. (1953). *Coming of age in Samoa: a psychological study of primitive youth for Western civilization*. Mentor books. Modern Library.
- [16] Piaget, J., M. Piercy, and D. Berlyne (2001). *The Psychology of Intelligence*. Routledge Classics. Routledge.
- [17] Schuman, H. and S. Presser (1979). The open and closed question. *American Sociological Review* 44(5), pp. 692–712.
- [18] Shenk, D. (2011). *The Genius in All of Us: New Insights into Genetics, Talent and IQ*. Anchor Books, New York.
- [19] Smith, B. L. and J. T. MacGragor (1992). What is collaborative learning? In *Collaborative Learning: A Sourcebook for Higher Education*. State College, PA: State College, PA: National Center on Postsecondary Teaching, Learning, and Assessment.
- [20] Zaritsky, J. (1994). Supplemental instruction: A peer tutoring program at laguardia community college.
- [21] Zaritsky, J. and A. Toce (2006). Supplemental instruction at a community college: The four pillars. In *New Visions for Supplemental Instruction (SI) for the 21st Century*. San Francisco, CA: Jossey Bass, A. Wiley Imprint.



# Academic Peer Instruction



## Across

1. the guide to a course
4. leaving out words to create a quiz
7. developer of taxonomy of objectives
9. stubborn, difficult
11. abbreviation for a nationally recognized program

## Down

2. developing fluent knowledge
3. refusing to answer questions
5. a game of knowledge
6. repetition to learn something
8. someone who assists but doesn't play
10. abbreviation for tutoring program at LaGuardia

[www.lagcc.cuny.edu/api](http://www.lagcc.cuny.edu/api)

February 2013

