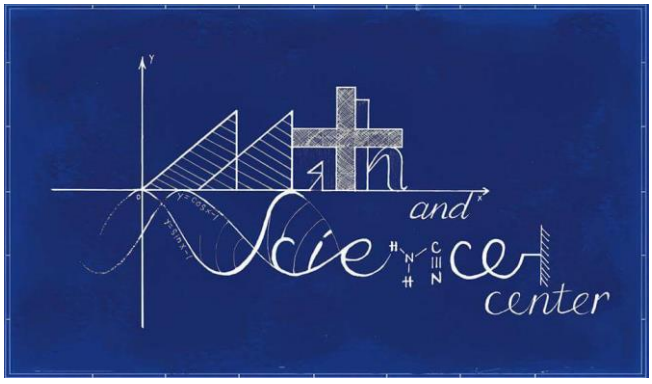
NOVA | Northern Virginia Community College

The Book of Everything

A Training Manual and Workbook for Tutors and Lab Assistants

Ruth Chambers-Turner, M.S.; Thi Nguyen, A.S.; Abdulwahaab Arif, A.S.; Tho Nguyen; Nhien Tran; Kathy Nguyen; Christian Rivero Parada, A.S.

ASC
Academic Support Centers
Northern Virginia Community College
Annandale Campus



Acknowledgements

> The Warrior of the Light is a believer. Because he believes in miracles, miracles begin to happen. Because he is sure that his thoughts can change his life, his life begins to change (Coelho, 2003).
>
> And, when you want something, all the universe conspires in helping you to achieve it (Coelho, 1993).

And, because we, the *Book of Everything* writers, believe that our supporters have helped us to make this book a reality, we finally make this book come to life.

First of all, to all NOVA students who have visited our center, the interactions with you and the experiences with your tutoring sessions, failures and successes, are the invaluable resources and inspiration for this book. You are the most important contributors to this book. Without you, it would be impossible for our center's tutors and lab assistants to gain the practical lessons that we share in the Book of Everything.

To all the tutors and lab assistants of Annandale Math and Science Center, this book is evidence of your devotion and dedication to the center and to NOVA students. Your hard work will be forever remembered here, in these pages, and in our memories.

We also would like to extend our special appreciation to the supervisors of the Academic Support Centers (ASC), especially the Writing Center for their editorial assistance. Without their tremendous and continuing support, this book would take a longer time to complete and to pass the "comprehensible standard."

Thanks to the Learning and Technology Resources Division, especially the Annandale Library, we were able to check out many books and print out many articles for our group's research and study.

Thank you, NOVA Community, for providing us a perfect learning and teaching environment where we can meet each other and many other scholars. NOVA is a "melting pot" where we, different people with different backgrounds, are able to share our ideas, work with each other, learn from one another, and grow with each other.

Last but not least, thank you our dear families and beloved friends for staying by our sides, even if not physically. Your presence in our lives adds more meaning and purpose to what we do, and it reminds us to be better and more helpful people tomorrow. For that reason, we wrote this book.

Table of Contents

Introduction

Dear readers,

Welcome to *MSC Book of Everything*! Before we provide you the mission of this little book, the MSC team would like to take a moment to appreciate your time and your interest for it. Although this book's title is *Book of Everything*, it does not attempt to include every study and business regarding Tutoring Math and Sciences. Instead, the *Book of Everything* provides the objectives and policies of the NOVA Annandale Math and Science Center. Also, it aims to share a humble but growing selection of good information. The information is collected from research journals, articles, and books that offer the definition of ideal tutoring sessions, advice and tips on acquiring and enhancing the necessary skills for tutors.

Recommended Use of the Book of Everything

Dear Supervisors,

The goal of the Book of Everything is to provide literature based theoretical knowledge and practical application of proven effective tutoring methodologies. Notably, the Book of Everything is not only a training manual, it is also a workbook that allows new tutors and lab assistants to actively learn and practice concepts through personal reflection and in-service application.

The recommended training schedule for new tutors is as follows:

1. Tutor trainee discusses center policies and procedures with supervisor and the Book of Everything is issued to the tutor trainee
    - The tutor trainee independently reads and answers workbook questions to Part 1: Section 1-What is tutoring
    - The tutor trainee discusses Section 1-What is Tutoring section workbook answers with supervisor or a lead tutor
    - The tutor trainee reads Section 2-What Good Tutors Do
    - The tutor trainee reads the ASC Blackboard file on entering hours on the HRMS system
2. Shadow session 1: The tutor trainee shadows an experienced tutor
    - The tutor trainee completes workbook questions for Section 2-What Good Tutors Do. Some questions will be answered during the shadow session
3. Shadow session 2: The tutor trainee shadows an experienced tutor
    - The tutor trainee discusses Section 2 with the supervisor
    - The tutor trainee reads and completes workbook questions for Section 3-Example of a walk-in tutoring session. Some questions will be answered during the shadow session
    - The tutor trainee reads Sections 4-9
4. The trainee participates in the third shadow of a lead tutor
    - The tutor trainee reads and completes workbook questions for sections 4-9.
    - The tutor trainee completes the ASC Blackboard training modules on the 12-step Tutoring Cycle and Dealing with Difficult Students
    - The tutor trainee discusses Sections 4-9 with the supervisor

Because the lab assistant plays a vital role in the front-line communication, scheduling, and tracking of the center usage, lab assistants must also be thoroughly trained.

The recommended training schedule for new lab assistants is as follows:

1. Lab Assistant trainee discusses center policies and procedures with supervisor and the Book of Everything is issued to the lab assistant trainee
    - The lab assistant trainee reads Part II of the Book of Everything
    - The lab assistant trainee reads the ASC Blackboard file on entering hours on the HRMS and completes the Blackboard training module titled Dealing with Difficult Students
2. The lab assistant trainee shadows a center lab assistant three times

- Shadow session 1: Lab assistant trainee is introduced to Accudemia and completes all Section 1 – Section 2 Accudemia workbook questions
- Shadow session 2: Lab assistant trainee uses Accudemia under the supervision of a lab assistant and is trained on Gmail-Email, The Board completes associated workbook questions
- Shadow session 3: Lab assistant trainee uses Accudemia, Gmail:Email, and The Board, under the supervision of a lab assistant, is introduced to textbook and calculator borrowing and completes associated workbook questions

3. Lab assistant trainee meets with supervisor to discuss training process

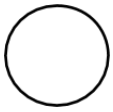
Part I: Training for Tutors

> "Everyone who tutors knows that some days are good and some days are bad. Sometimes, you leave a tutoring session feeling like a superhero. Other times, tutoring sessions end in tears (for the student, usually, but sometimes for the tutor as well). But most of the time, tutoring is a simple thing; it involves helping someone learn something that you already know. It means taking skills and information that you possess and making them simpler, less scary, or just more relevant to a student's life. Tutoring also means being a cheerleader and pushing students to work harder, to try harder, and to learn better. And, for many tutors, tutoring also becomes a way to push themselves to become better communicators, better listeners, more patient, more kind, more understanding of others, and more understanding of the world" (Chin, et al., 2011).

Dear Tutors,

If you are seeking information to understand who you are as well as what it means to be a tutor, what you need to do, and how you can do well at your job, then, CONGRATULATIONS!

Congratulations to you for embarking on a new spiral journey. In your journey of being a tutor, you will be (1) *mindfully collecting intellectual information every time you tutor*, (2) *contemplating those pieces of experiences to form new lessons*, (3) *applying the new-learned lessons at the next tutoring session*, (4) *transforming those lessons into your permanent knowledge*. You will be continuously doing these four steps again and again throughout your tutoring career, but every time you begin the new tutoring session, you begin with a different perception and understanding about your job. Because you mentally grow after every session, you do not come back to the same place where you began; rather you go further and ultimately reach your highest potential.

Therefore, your journey as a tutor is a  journey, not a  journey.

This spiral journey is the journey of becoming a greater tutor and a better person.

The MSC team hopes that after every page that you flip, you will find this book a helpful and practical resource for your spiral journey. We believe that you, with your passion, knowledge, courage, and persistence, will make differences to the tutees you help, and to yourself.

1. What is Tutoring?

Tutoring Defined

The original definition of peer tutor was derived from the ancient Greeks. A tutor was classified as a substitute to the instructor who was responsible for transmitting information from the *tutor* to the student, the *tutee* (Toppings, 1996). By this definition, a tutor was no different than a teacher. However, it was later noted that the interactions between teacher and student were quite different from the interactions between tutor and tutee (Toppings, 1996). In a later definition, a tutor was characterized as an individual with higher abilities helping less able students by working in pairs or small groups (Toppings, 1996). This continues to be the definition of peer tutoring at many colleges and universities. A broader definition of tutor that has been accepted is an individual who is not a professional teacher working with another individual from a similar social grouping (Toppings, 1996). This also applies to peer tutoring in colleges and universities, but allows tutors and tutees to be of similar abilities in order to both benefit from the tutoring session.

Figure 1. Who is the tutor? Who is the student?

In the college tutoring center setting, tutoring is often knowledge or skills focused with tutors working in various contexts. In addition, tutoring can occur as review sessions where one tutor leads several students. Newer forms of tutoring include embedded tutoring, where tutors are assigned to a class and work closely with an instructor to provide tutorial services. In tutoring centers, tutors can be early in their college careers, but should have experience with the courses they are tutoring to provide adequate service. Notably, same-ability tutoring of pairs of students is becoming increasingly popular as an instructional methodology. Dependent on the campus, tutoring can take place in specially designed tutoring centers or other locations, such as a library, or coffee shop. In the past, only students who achieved the highest grade point averages, were considered to be worthy as tutors. However, because academically excellent tutors may not find working with lower ability students intellectually challenging or may have difficulties relating to students with lower ability, research is showing greater benefit for tutors that are academically average (Fantuzzo, Dimeff, and Fox, 1989).

Provide an example of an experience in which you took on a tutee role.
Provide an example of an experience in which you took on a tutor role.

Teaching vs. Tutoring

Tutoring is *not* teaching (Table 1), although instructors can be tutors and tutors do teach important lessons. Instructors and tutors should not be opposing forces because both tutors and instructors have the goal of student success. However, the qualifications, methods, goals, and expectations of instructors versus tutors are very different.

Teaching	Tutoring
Instructors at the college level have earned a BS degree and often, as a minimum, have MS credit in their field	Tutors in tutoring centers have experience completing courses, earned a B or higher in course specializations, and have a minimum 3.0 GPA.
Instructors teach pre-determined curricula including assignments and graded exams based on academic standards of the college	Tutors respond to questions from course curriculum already taught with the goal of reinforcing what has been taught. *Therefore, tutee's must attend class to receive tutoring*.
Instructors transfer knowledge obtained through their education derived content knowledge, textbooks, and previous teaching experience	Tutors utilize resources such as the student's textbook, class notes, course syllabus, and tutoring center resources to respond to student questions
Instructors teach a large number of students with varying levels of ability and learning styles	Tutors provide one-on-one instruction tailored to the student's specific ability and learning style
Instructors assign material intended to help students of varying learning abilities grasp material	Tutors help students understand assignments according to their learning ability level and learning style. Tutors can also suggest additional material to assist students in learning.
Instructors attempt to set the pace of the class at a speed where the majority of students understand the material	Tutors allow the students to set the pace of the tutoring session by allowing them to continue on a topic until they have achieved understanding
Instructors are expected to be content area specialists that are highly knowledgeable in their subject area.	Tutors are expected to know how to use resources to determine the solutions to subject area problems.

Table 1.Teaching versus tutoring. A compilation of characteristics of tutoring versus teaching (ASU Student Services, 2012; First Tutors, 2012)

The goal of teaching is to transmit knowledge effectively to the majority of the class. However, ***the goal of tutoring is to (1) guide students through content area difficulties, (2) help students achieve greater understanding, and (3) teach students how to effectively study and learn independently!***

In your example experience where you were the tutor, did you act more as a tutor or a teacher? If you acted more as a teacher, how could you have modified your actions to act as a tutor? If you acted more as a tutor, explain what actions you completed that made you less like a teacher.

Benefits of Tutoring

Much study has been completed on the benefits of tutoring to tutees and tutors. An obvious example of tutee benefit is higher performance on exams and course grades (Beasley 1997; Mynard and Almarzouqi, 2006). However, research has also indicated that peer-tutoring increases metacognition, time management, and study, analytical and organizational skills in tutees (Beasley, 1997; Arco-Tirado, Fernandez-Martin, and Fernandez-Balboa, 2011). Furthermore, the benefits of tutoring to tutors and tutees include increasing confidence and self-esteem, networking opportunities, building friendships, and enhancing team-work and leadership skills. Tutors have also commented on the positive feeling of working to help others' grades (Beasley 1997; Mynard and Almarzouqi, 2006).

How will tutoring facilitate your individual growth?

Tutor Training

Just as education in a content area is necessary to be a good teacher, training in tutoring is necessary to be a good tutor. Most new tutors will have a good idea of what learning methods work for themselves, but they may be unaware of specific methods that can apply to individuals with different learning styles. Furthermore, there are numerous techniques of effectively and efficiently transmitting information in order to stimulate higher levels of learning and metacognition that may not be known by new tutors. In addition, many new tutors are unaware of the good study habits they have unconsciously developed for themselves. Thus, the most effective tutoring centers have developed training programs that enhance these skills in new tutors in order to make them *good tutors*.

2. What Good Tutors Do?

Good Tutors

Good tutors are not good because they know EVERYTHING! They are good because they *ask questions* and *provide feedback* that allows the student to *construct understanding* and remove misconceptions or missing knowledge. More specifically, good tutors initiate dialogue through questions. Although students approach tutors to answer their questions, tutors should encourage students to learn actively (asking and answering questions, writing, and working out problems) rather than passively (listening to lecture). Tutors can encourage this active learning by utilizing the Socratic Method of questioning. When using the Socratic Method, a student first poses a question to a tutor. Instead of the tutor directly answering the question, the tutor asks the student a question that is intended to lead the student to answering their own initial question or the discovery of their misconceptions (Graesser, 1995). Socratic Method is discussed further below. A statement to remember is "A good tutor will end more sentences with a question mark than a period" (Arif, personal communication, 2014).

In your experience, which type of learning is more effective, active or passive learning?

Provide Feedback

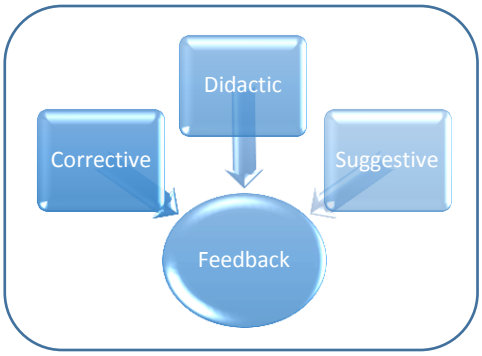


Figure 2. Types of feedback.

In addition to asking questions, good tutors provide feedback. There are three basic types of feedback that a tutor should offer: corrective feedback, didactic explanations, and suggestive feedback (Chi 1996). Corrective feedback can be given if a student makes a simple error, such as an algebraic mistake (Chi 1996). Notably, the tutor should try to question the student about where the mistake was made and what the correct answer should be, rather than immediately providing the correct answer. Didactic explanations are long explanations of content and are also termed lecture. Research has not supported the use of didactic explanation in tutoring or classroom settings as an effective method of generating student learning (Chi 1996). Thus, tutors should limit didactic explanations during tutoring sessions. Examples of suggestive feedback include, hints, pauses, raising the intonation in the voice, non-specific questions (such as, is that right or why do you think that?), or providing some new information (such as, have you thought about it this way?) (Chi 1996). If suggestive feedback leads to a series of exchanges that build to a final correct answer, that technique is known as scaffolding.

In your own words give an example of each type of feedback.

Construct Understanding

By responding to tutor questions and feedback students construct their own understanding through self-explanation (Chi 1996). Self-explanation with guidance from a tutor may have positive effects on learning (Chi 1996). In fact, research has shown that improved learning and problem solving occurs when students work in collaboration (Coleman, 1992 as cited by Chi, 1996). Therefore, a goal of a good tutor is to encourage students to enter a collaborative dialogue that encourages self-explanation.

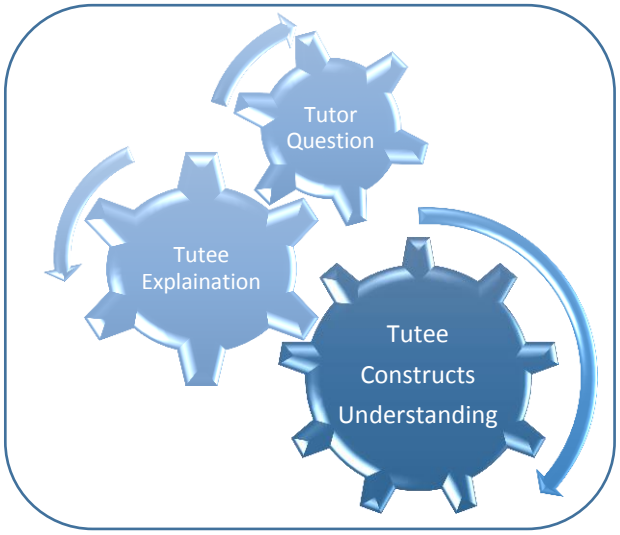


Figure 2. Construct understanding. In response to tutor questions, tutee's construct understanding.

Have you ever had an experience in your study routine or classes where you have answered your own question? What impact did that knowledge construction have on your learning?

Utilize the Tutor Framework

According to Graesser, Person, and Magliano (1995), a typical tutoring dialogue consists of the five broad steps that they have referred to as the "tutoring frame." A version adapted from their "tutoring frame" is described below (Figure 4):

1. Tutor asks an initiating question.
2. Student provides a preliminary answer.
3. Tutor gives (confirmatory or negative) feedback on whether the answer is correct or not.
4. Tutor scaffolds to improve or elaborate the student's answer in a successive series or exchanges (taking 5–10 turns)
5. Tutor gauges the student's comprehension of the answer. (Graesser et al., 1995)

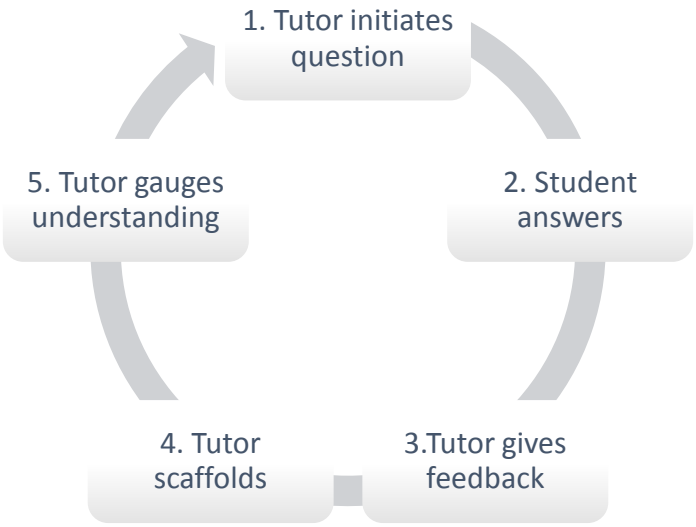


Figure 3. The tutor framework (Graesser et al., 1995)

The tutor framework, the five steps above, is an ideal framework of organizing for tutor/tutee dialogue during a tutoring session.

List and give an example of each step of the tutor framework

Ask the Right Questions

Students often come to the MSC in their moments of desperation. They're in a rush and are simply looking for quick answers and a recap of half a semester's worth of class material. Instead of giving in to their demands, the goal of the MSC is to do something even more important: promote long-lasting learning. John Cleveland (2008), the director of the Polytechnic Tutoring Center at NYU, reflected on this notion in his article, "What Socrates would say to Undergraduate Tutors." Cleveland discussed how crucial it was for tutors to ask the right questions when they were tutoring. Learning how to probe the student's range of knowledge is a unique skill that allows tutors to see how well the student understands a particular topic. Socrates never claimed to have any knowledge at all. His brilliance came from his peculiar quality of pulling out and constructing the innate knowledge people had by engaging in discussions and asking the right questions. Socrates' method, also known as the Socratic Method, is often associated with extraordinary tutoring because it helps tutors consolidate a student's understanding and remove any misconstructions they may have. An exceptional tutor makes few statements and asks many questions so that students must recall and use what they remember from class. A tutor guides them along the path of excellence by helping them connect the dots; a tutor's job is to push them into a higher level of consciousness.

Explain why making few statements and asking many questions is a more beneficial tutoring method than providing many answers or explanations and asking few questions.

Probing Questions

Probing questions force the student to think deeply on the concept at hand. These students may be prompted to raise their own conclusions or the tutor could guide the student a greater extrapolation of the topic. This type of question essentially allows the student to verbalize ideas that they read in a book or hear from class and recognize their implications.

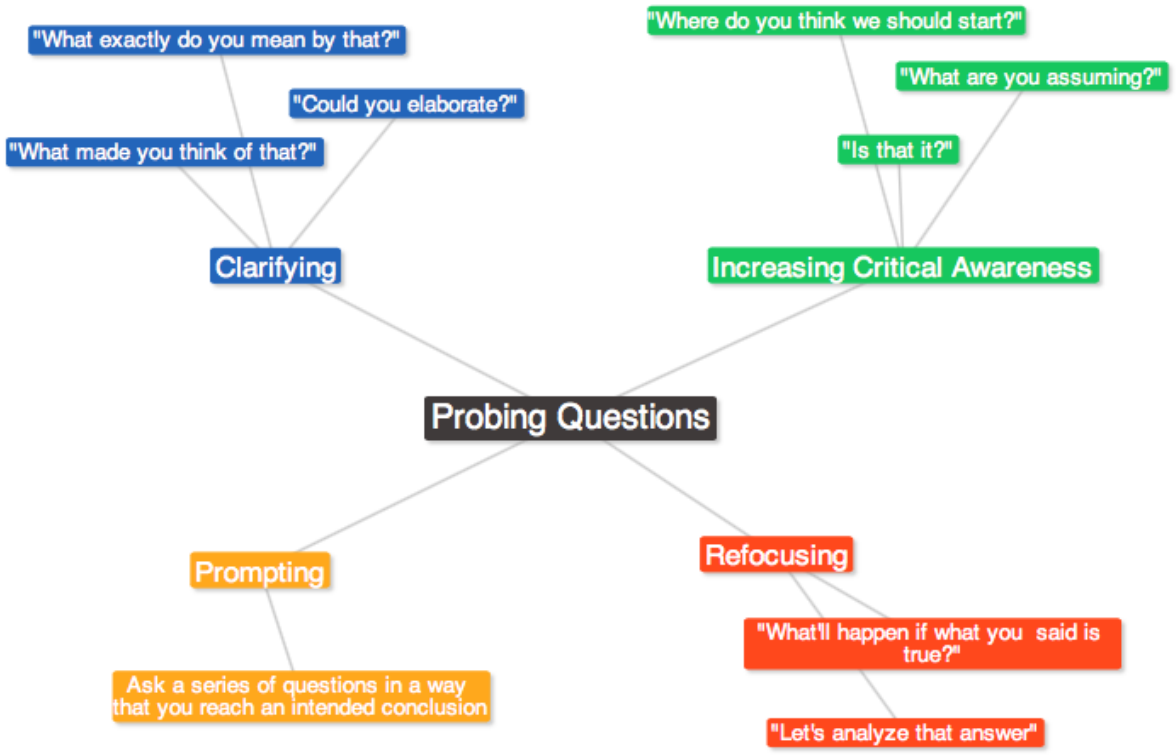


Figure 4. Probing Questions. Four types of probing questions: clarifying, increasing critical awareness, refocussing, and propting (citation).

In your tutor shadow experience, listen carefully to the types of probing questions the tutor asks the students. Based on your shadow experience, list an example of a clarifying, prompting, increasing critical awareness, and refocusing question.

Factual and Divergent Questions

Factual questions and divergent questions are two distinct types of questions. Factual questions involve the student restating basic definitions and even a series of definite steps. On the other hand, divergent questions involve the student going against the grain and wondering what would happen if some aspect of the question was altered or reversed. By using this questioning method, the student can see that although the problem looks different, the approach the tutor discussed remained the same. So, while factual questions deal with what is expected to happen, divergent questions help students expect the unexpected.

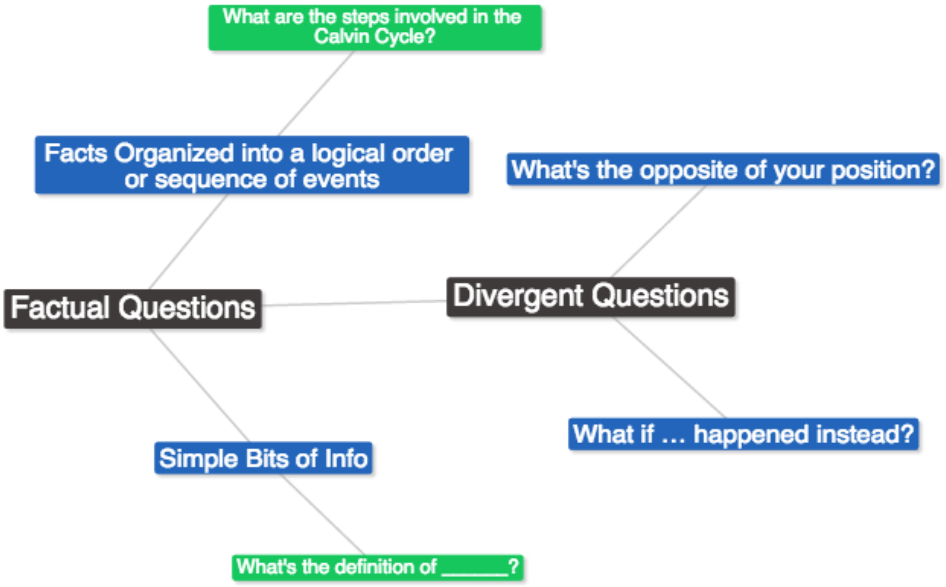


Figure 5. Factual and divergent questions (citation).

In your tutor shadow experience, listen carefully to the types of factual and divergent questions the tutor asks the students. Based on your shadow experience, list an example of a simple bit of info, logical order/sequence of events, and a divergent question.

Higher Order Questions

Higher order questions are used to engage students into higher mode of thinking. Students who are comfortable with the class material should be challenged intellectually. This type of question may pertain to comparing and contrasting ideas. In addition, these questions may force the student to assess certain concept applications or apply that concept to an unfamiliar problem. These questions are reserved for those exceptional students who can be pushed to think critically, more so than usual. However, keep in mind that the overall goal is for all students to reach this higher order of thinking.

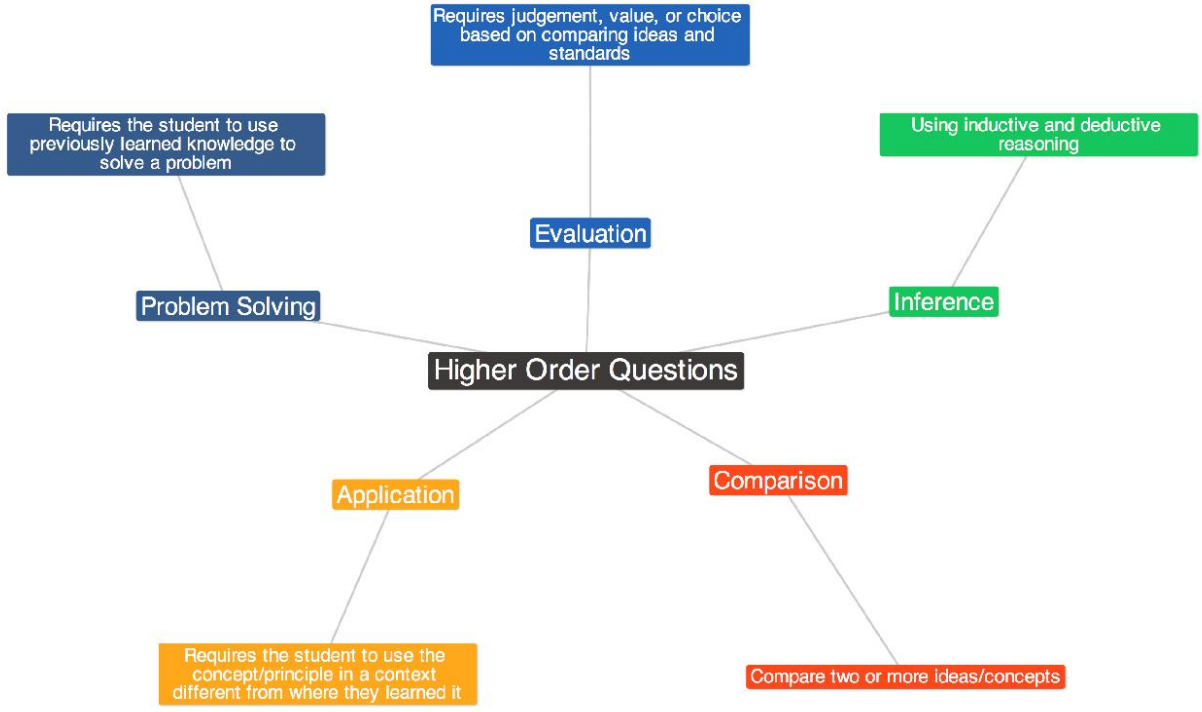


Figure 6. Higher order questions (citation)

In your tutor shadow experience, listen carefully to the types of higher order questions the tutor asks the students. Based on your shadow experience, list an example of a problem solving, evaluation, inference, comparison, and application question.

Affective and Structuring Questions

Affective and structuring questions can be considered as buffers in a tutoring session. An affective question gauges how a student discerns information emotionally. Most importantly, there is no right or wrong answer with affective questions because it simply gives the tutor a glimpse of the student's attitude to the topic at hand. On the other hand, structuring questions are used as a bridge from one concept to another. It gives the student a chance to voice their confusion, if any, or signal to the tutor that they completely understand what has been discussed. Either question can be used after discussing a particular idea. As a leading tutor at the MSC puts it, "…my suggestion is to make our center a professional and friendly zone. We should learn how to help the student emotionally (as in encourage them) and reduce the space between tutors and students." (Lê, personal communication, 2015). In brief, both types of questions allow the tutor to see how the student digests information in various ways.

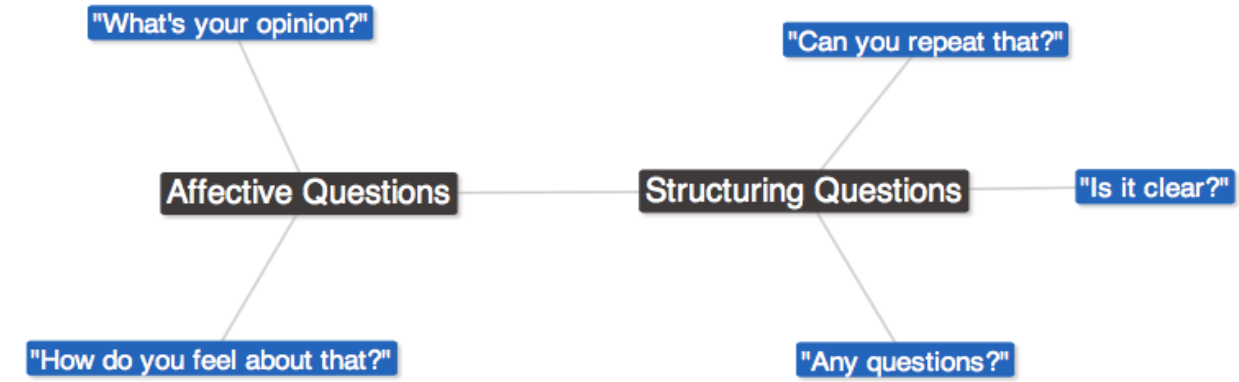


Figure 7. Affective and structuring questions (cite)

In your tutor shadow experience, listen carefully to the types of affective and structuring questions the tutor asks the students. Based on your shadow experience, list an example of an affective and structuring question.

Employ Additional Tutoring Techniques

McArthur (1990) detailed 44 tutoring strategies that were later classified by Chi (1996) into three broad categories: prompting for self-explanation, scaffolding, and providing feedback. The tables below summarize a selection of these tutoring techniques. Although the tactics in the tables are applied to Algebra, they can be applied to many different disciplines.

Providing feedback		
Technique Name	**Technique Description**	**Example**
Correct	Tutor lets the student know that he or she has correctly answered the question.	Right.
Deny	Tutor lets the student know that he or she has incorrectly answered the question.	Don't think so.
Do more assessment	Tutor relays that the student needs more practice to master a skill.	I think if you do a lot of these, you will get more relaxed with this skill.
Motivation	Tutor expresses confidence in the student's ability to complete a task.	I think you can do that really well.
Focus on an error	Tutor draws attention to the location of an error.	Not *ac*.
Try again	Tutor tells student that his or her answer is incorrect and to try again.	Better look at that one more time.
Problem description	Tutor describes the problem. No new information is given. The description orients the student to the important features of the problem.	And you have *x* variables and *b* variables on both sides of the equation.
Problem point	Tutor summarizes, justifies, explains, or emphasizes how or why the correct reasoning step is done.	That's right. So, once you eliminate fractions in any problem, you see how smoothly things begin to go after that.
Suggest right procedure	Tutor suggests to the student the procedure that should be used to complete the reasoning step.	How about factoring, do you know how to factor?
Explain	Tutor provides student with an explanation or source of his or her error.	See, these two are separate terms, right?
Change original problem	Tutor changes the problem that the student is solving so that the incorrect answer becomes a correct answer.	The way you filled that in, I'm going to have to change the original problem
Compare methods	Tutor compares alternative approaches to solving a problem giving detailed explanation (modeling) the correct reasoning of each approach.	What you could have done is to multiply both sides by negative 1. It does not have to be written down but *(-1)(-x)=(-1)(21)* If you did that, the -1 and the *-x* gives you *+x* and the *-1* times the *21* gives you *-21*.
Problem similarity	Tutor compares the current problem to a previously solved problem. Comparison is for similarities that both problems share.	Again (as in the last problem, you have a problem where your x variables are on both sides of the equation.

Table 2. Tutor techniques of providing feedback to student. An abbreviation of McArthur (1990) organized according to Chi (1996).

Prompting for self-explanation		
Technique Name	Technique Description	Example
Prompt	Tutor asks what should be the next step.	Where do you want to begin?
Query	Tutor asks student if they know how to complete a task.	Can you do that?
Confidence assessment	Tutor questions how comfortable a student feels about his or her performance.	Do you feel good on this?
Prompt how	Tutor asks student to give more detail about his or her reasoning.	How do you do that?
Clarify/ Justify	Tutor request the student to further explain, elaborate, or justify his or reasoning.	By dividing…What do you mean by dividing? How do you know to use division?
Consequences of incorrect reasoning	The tutor carries out the student's incorrect reasoning to demonstrate how it would not lead to a logical or correct solution.	If you put *b/x*, it would turn into a 1; I want *x* to stand alone…
Redo	Tutor has student repeat and explain the step or problem they have just completed.	Task (redo)

Table 3. Tutor techniques of encouraging student self-explanation. An abbreviation of McArthur (1990) organized according to Chi (1996).

Scaffolding		
Technique Name	Technique Description	Example
Model reasoning	Tutor models the "ideal" reasoning to the extent that all the student has to do is to provide an answer.	If you have 4 of something and I have 8 of something and we have exactly the same amount, the only thing we can have is absolutely…
Warning	Tutor warns the student to be careful on next step or warns that his or her decisions may be inappropriate or invalid.	Now don't get caught on that one.
Map easier problem	Tutor interpolates an easier problem with the feature or skill that the student finds difficult. First, the easier problem is solved; then the tutor assists the student in applying the similar features of skills to solve the current problem.	Task (do-easier-problem), task (map-problem)
Drill	Tutor interpolates several easier problems with the skills that the student finds difficult. These problems are presented in succession, a "drill" of the skill, concept, and so on.	Task (do easier problem), repeat as necessary.
Map difference	Tutor refers the student to a previously solved problem. A comparison of differences is made, and using these differences, the tutor and student arrive at the correct reasoning.	Task (find a different problem), task (find difference), task (compare for similar features).

Table 4. Tutor techniques of scaffolding to elicit deeper understanding. An abbreviation of McArthur (1990) organized according to Chi (1996).

Use the tutor framework to compose an example of tutor/tutee dialogue during a tutoring session. In your example the tutor should use multiple techniques of providing feedback, prompting for self-explanation, and scaffolding.

Other Tutoring Techniques	
Technique	**Description**
Wait time	Silence can be uncomfortable, but it allows time for the student to fully form their thoughts. If a tutor asks a student a question and the student does not immediately answer, the tutor should wait ten seconds to allow the student to develop an answer. Likewise, the tutor should wait a few moments before telling the student he or she has answered a question incorrectly because it allows the student the opportunity to self-correct.
Paraphrase	A tutor can re-state the student's words, or paraphrase, in order to help clarify a concept. Paraphrasing ensures that the tutor has an understanding of what the student is trying to express. A tutor can also ask the student to paraphrase information after reading in the text. This tutoring technique not only helps the student construct understanding from the text, but can also help the tutor assess the student's level of learning.
Modeling	During modeling, a tutor works through each step of a problem or concept while explaining and questioning the student on the process. Because many problems follow an algorithm of steps, modeling can help the student learn each step. After modeling the problem, the tutor should review the problem then ask the student to solve a similar problem based on the steps they just observed.
Board work	Working on a board can change a student's viewpoint toward a concept. A concept that may have been difficult and seemed impossible on paper is sometimes easier to understand on the board. This may be due to some individuals being visual or kinesthetic learners.
Summarizing	After completing a problem, section, or chapter, it is important to summarize what material has been covered and what material is yet to be worked on. This practice helps keep the student and tutor on task.
Get help	It is acceptable to not know everything!!! This is especially true for new tutors. If you are unsure of the answer to a student's question, it is ok to ask a lead tutor for assistance.

Table 5. Other tutoring techniques to elicit deeper learning. Adapted from the NOVA Alexandria Tutor Training Manual (2013).

Describe three instances in your tutor shadow experience when the tutor used wait time, paraphrasing, modeling, board work, summarizing, or got help. How did the use of these methods impact the tutoring session?

3. Example of an Effective Walk-in Tutoring Session

The Appendix contains an example of a walk-in tutoring session. Please carefully review the transcript with the knowledge of the tutoring techniques described above in mind.

Label 5 instances when the tutor utilized a question that could be categorized as a probing, factual, divergent, higher order, affective or structuring question. Label three instances of providing feedback, 2 instances of prompting for self-explanation, and 1 instance of scaffolding. Replace two tutor statements in order to make better use of Socratic Method.

4. Tutoring by Subject Area

Math Tutoring

Although tutoring mathematics is one of the most unambiguous subjects to tutor, students often feel that the theory they learned in class does not correlate to their homework questions. The math tutor's job is to help the student grasp how the concept could be applied to solve the problem. One issue tutors may have with this subject is the variety of approaches professors take when solving a particular problem. Math tutoring is not as obscure as other subjects and there is a great deal a math tutor could do to simplify this process.

- **Can you solve it?** While this may seem obvious, the tutor should first determine whether or not they can help the student. If the tutor does not know the topic or how to solve the question, they should not be afraid to tell the student "I don't know." However, the tutor could look up the topic in the textbook to refresh their memory. On the other hand, the tutor could also try to find another tutor who can help that student. Remember, however, although tutors are not supposed to know everything, they should always strive to get better.
- **Determine their level of proficiency.** A math tutor should discern the student's degree of understanding. The tutor can attempt to determine the student's range of knowledge via various tutoring techniques and questioning methods. Moreover, if the student has already worked the problem out, the tutor could ask them to describe how they approached it in order to learn their thought process. On the other hand, if the student has not tried to solve the problem, the tutor should ask the student basic questions about the topic and see how well they understand the material. This is done so that the tutor can identify the student's key weaknesses.
- **Break the problem into steps.** Breaking down the problem into tiny steps is absolutely vital. The problem should be dissected into baby steps that the student can easily follow. A new tutor may use a sheet of paper if they need to map this out. Over time, the tutor should be able to complete this task mentally. Also, the tutoring framework works exceedingly well once the tutor knows the steps they need to take with the student. The tutor should guide the student from step to step until they reach the desired result. This

framework cannot succeed until the tutor understands how to break down a problem and highlight particular steps.

- **Use the textbook.** The textbook is one of the best things a tutor could use in a math tutoring session because of the way it structures its content. Math textbooks highlight the important theorems, formulas, and may even summarize the chapter. More importantly, the textbook has examples that highlight possible issues students frequently run into when they're solving their homework. Also, these examples can be used to demonstrate a certain technique to a student. Most importantly, use the book's approach to express ideas because referencing the textbook will help the student retain the material.

Chemistry, Physics, and Engineering (CPE) Tutoring

There are many words to describe the nature of general college CPE, such as: abstract, excessive, and unrealistic. Those are also the reasons why students find it difficult to understand CPE problems because they have little connection to the real world, requiring board cumulative knowledge and lots of imagination.

A CPE tutor is responsible for helping students not only with their problems but also helping them understand concepts and develop their critical-thinking abilities. Therefore, aside from the basic tutoring methods (Socratic Method), CPE tutoring usually utilizes these methods:

- **Make it real**. The most common reason why students don't get their problems is that they cannot imagine how the concepts work in real life. Therefore, the role of a CPE tutor is to build the connection for the student by: *metaphorically linking* the problems with concrete, visible objects, use online *animated videos* (if time is available), or *draw diagrams* on a piece of paper (Physics tutors use this a lot). This is one of the basic and most essential skills for any CPE tutor. It's also applicable for almost every CPE aspect including: College/Inorganic Chemistry (Gas Laws, Rate law, equilibrium, electron configuration, etc.), Organic Chemistry (dimensional structures, mechanisms, reactivity, etc.), Physics (Kinetics, electro motions, harmonic motions, quantum mechanics etc).
- **Develop logical analysis.** Let students *read* their problems thoroughly, *write* down the premises, *contemplate*, and *analyze* the data. More specifically, encourage the students to determine what could be figured out based on those premises, how could that factor help to find the answer, and which equation should be used in a specific kind of problem. This process is generally and logically applicable to every CPE problem. Therefore, making students follow those steps not only facilitates the problem-solving process, but also develops an independent and beneficial learning habit.
- **Drill the equations into them.** In CPE, there are some basic equations namely gas law (pV=nRT), buffer equation (pH= pKa + log(base/acid)), or Newton's second law (F=ma). Students often prefer to memorize and solve problems in less than a minute versus understanding and trying to prove the mechanisms in two hours. Therefore, if your students are stuck with equation-applicable problems, just *drill the equations into* them until they remember. It isn't worth it to have students imagine or understand super-abstract-but-simple equations since you don't want to put more burdens on them.

In short, tutoring CPE needs some specific methods to counter the abstract and impractical characteristics of these three sciences, which usually overload students.

For many students, set subjects such as calculus, physics or even literature have little connection to their lives. Yet the same subjects they find so boring are a source of great passion for many thinkers the world over. One of the most valuable lessons tutors can share with their students is a *passion for learning* (Ellis, 2014).

Biology Tutoring

In Biology and Human Anatomy there is a lot of material to cover and students sometimes struggle with the complex concepts and the many facts they are expected to know. There are a few skills and strategies a Biology tutor may need to understand and have ready.

- **The concepts always build in a logical order and build up.** More often than not, the student may have memorized the facts and may not see the logic or the way the concepts connect. With that in mind, breaking a large, complex concept into smaller more basic concepts will help the student understand the concept. This will give the student a deeper understanding and more confidence making the task less daunting.
- **Analogies can make concepts relatable.** The concepts may seem boring, difficult to imagine, difficult to relate to everyday life, and therefore, difficult to understand. Analogies are a great way to connect the concepts to something more common that the student is more likely to understand. For example, comparing how a cell wall functions to the way a building's walls function. They both provide structure.
- **Use references.** A reference can be the textbook, any study guides, or lab books. They have diagrams, pictures, and text that can help the student understand. The diagrams and text can also help as a refresher for the tutor as well. The textbook can also be used as a text reference to avoid teaching the concept or explaining too much. The diagrams, especially in biology, are very important to understand. Tutoring directly with those in hand makes the process much easier and better for the student.
- **Ask questions.** Questions can help the tutor gauge what the student understands and allow the student to control their learning in the session. Biology is a large subject matter, and every student will learn differently and have issues connecting different concepts. In a simple one hour session, there is no time to review the entire chapter. However, letting the student guide the session gives them the opportunity to ask about parts they may be confused with. Questions can also allow the tutor to gauge what the student needs help with then proceed. Therefore, ask questions to encourage the student to control the session, check if the student understands completely, and lastly to guide the students through the breakdown or buildup of a concept.

By implementing these techniques and using resources, you should be able to clarify concepts and effectively help the student. Lastly, remember you are a student too and you are not expected to know everything and recall every concept in biology. Thus, before a session, review the concepts or the chapters that the student requested tutoring in.

Accounting Tutoring

Much like biology, accounting tutoring is far more conceptual than math, chemistry, physics, or engineering. Further, accounting can feel equivalent to learning a new language due to extensive new vocabulary and set protocols (Roney, 2015 personal communication). Some key techniques to keep in mind when tutoring accounting are:

- **Gauge student knowledge.** Make sure to gauge the student's knowledge of the topic before beginning the lesson. A few questions relevant to the topic will go a long way in helping you gauge his/her knowledge.
- **Encourage logic rather than memorization.** Above all, make sure that the student is not simply memorizing concepts or steps to obtain the right answer; instead, focus on teaching the logic or reasoning behind each step. Learning the logic of each concept is paramount to be successful in accounting as each concept will repeatedly show up again and again throughout the course, and has to be fully understood when the time comes to evaluate financial statements. In essence, memorizing concepts and steps will help in creating financial statements, but a logical understanding of the concepts will allow the student to discern the financial situation of a company by being able to interpret and further analyze its financial statements.
- **Encourage students to do their part.** In accounting, and many other disciplines, it is imperative that the tutor encourages the student does their part by reading the chapter, completing demonstration problems, and working on homework problems. It is not the tutor's role to re-teach the material, but if the student has a general idea of the concepts the tutor can guide the student to conceptual understanding.

Read the section on tutoring by the subject areas you will be tutoring. If you will only be tutoring one subject area, read an additional subject area. In your own words, describe differences in the approach to tutoring one subject area versus another.

5. "I don't get it"

When the tutor initiates the tutoring session by asking the student questions, sometimes, the student responds, "I don't get it" or "I don't know." So, how does a tutor interpret the "I don't get it" statement? Also, how does the tutor proceed with the tutoring session?

Most of the time, after working with students for a while, a tutor will realize that "I don't get it" has several meanings:

- I don't know what to do.
- I don't know how to start.
- I'm confused by this task or skill.
- I don't know where to look in the book for this answer (and I don't want to read the whole chapter).
- This looks like it will take too long.
- I don't feel like doing this right now.
- I don't like this kind of work (Chin, 2011).

Different meanings of "I don't get it" also require different approaches from the tutor. There are some basic steps that a tutor can conduct to access the student's understanding and get him/her to speak more.

1. Clarify the exact problem/concern that the student doesn't get by asking "What exactly don't you get?"
2. Start breaking the problem into small pieces, if the student's response is "all of it." At this point, if the student is not able to identify the small parts of the problem, the tutor will need to help the student identify them and point out the skills/concepts the problem involves. The tutor should determine whether the student knows those concepts and possesses those skills based on the tutor's previous experience with him/her, then show where in the problem he/she should be able to get.
3. Read it out loud! Have the student read the questions or the instructions of the problems out loud. Sound makes sense to the brain: very often, solutions emerge as soon as the student reads the problem.
4. Inquire whether the student has reviewed the necessary material in the textbook/lecture notes to answer the question. Sometimes, the student doesn't get the question just because he/she hasn't read the material. However, there are times the student doesn't even know what to read to solve the problem, so the tutor will need to point out what they need to read. The tutor can offer to read together with the student.
5. Thinking out loud! The tutor should ask the student to say everything he/she knows about the problem. The tutor can also have the student write the problem at the top of a blank paper, encourage him/her to write down what they do know about the problem and try to solve it on their own (writing down the problem at the top of a blank paper helps refresh the student's mind and forces him/her to think only of the problem itself).
6. Importantly, remember that one can only learn on one's own. Therefore, the tutor should push the student to do his/her best, but should remain kind and encouraging.

After going through the steps above, the tutor may realize that the student simply is not paying attention to the problem or directions and needs to reread the material, review the key concepts, or needs a push to get started. Perhaps, the student is really confused. Working through these steps can help the tutor clarify the student's confusion and identify where to start the tutoring session (Chin, T., 2011).

Remember not to do the problem for the student. The student learns by doing the problem on his or her own.

In your own words write an action plan of how you will respond when a student answers "I don't get it."

6. Walk-in versus Appointment-based and Online Tutoring

The MSC offers three tutoring format options. A comparison of the three formats is outlined in the table below.

	Walk-in Tutoring	Appointment-based Tutoring	Online Tutoring
Goals	• To provide quick assistance to students with a few questions/problems	• To provide diagnostic tutoring to determine subject matter deficiencies. • To assist students with concepts requiring more time than can be provided in walk-in tutoring • To teach study and organizational skills in order to assist students in becoming independent learners.	• To provide convenient tutorial services outside the center. • To provide diagnostic tutoring to determine subject matter deficiencies. • To assist students with concepts requiring more time than can be provided in walk-in tutoring • To teach study and organizational skills in order to assist students in becoming independent learners.
Location	Walk-in tutoring room	Appointment tutoring room	Online through Blackboard Collaborate
Tutor role	• Tutors circulate around the walk-in tutoring room answering student questions. • During down times, tutors review subject matter from the courses they specialize in. • Tutors utilize textbooks, MSC course resources, and center whiteboards to illustrate concepts.	• Tutors meet with individual students at a scheduled time. • Tutors prepare for sessions by reviewing subject matter that students have requested assistance in advance. • Tutors utilize textbooks and MSC course resources to illustrate concepts. • Tutors make recommendations or develop action plans to strengthen students in subject matter and study skills.	• Tutors meet with individual students at a scheduled time. • Tutors prepare for sessions by reviewing subject matter that students have requested assistance in advance. • Tutors utilize the whiteboard function of Blackboard Collaborate in addition to online videos, e-texts, and websites to illustrate concepts. • Tutors make recommendations or develop action plans to strengthen students in subject matter and study skills.
Tutee role	• Students are grouped at tables by subject area so that they may not only receive assistance from tutors, but may also collaborate with each other for group	Students are expected to: • arrive on time, • bring all materials needed (syllabus, notes, text, etc.), • prepare questions for each session, • review material and attempt practice questions, • attend class regularly, • respect the honor code by not	Students are expected to: • arrive on time, • bring all materials needed (syllabus, notes, text, etc.), • prepare questions for each session, • review material and attempt practice questions, • attend class regularly, • respect the honor code by

	learning.	asking for answers to graded coursework, and • be engaged in the session.	not asking for answers to graded coursework, and • be engaged in the session.
Time restraints	Tutors typically spend 8-12 minutes working with one student. The tutor then encourages the student to work independently and returns when the student has another question.	Fifty minute tutoring session plus 10 minutes to evaluate progress and complete an exit survey	Fifty minute tutoring session plus 10 minutes to evaluate progress and complete an exit survey
Subjects	Math (but all subjects offer walk-in hours)	All subjects	Chemistry, Biology, some Math, Physics, and Accounting
Availability	All center hours of operation	By appointment only	By appointment only

Table 6. Comparison between the three means of tutoring at the MSC.

In your own words describe the goals of walk-in tutoring versus appointment-based and online tutoring. Why are the goals different? Describe the tutor roles of walk-in tutoring versus appointment-based and online tutoring. Why are the tutor roles different? How is the structure of a walk-in tutoring session different than appointment-based and online tutoring?

The 12-step Tutoring Cycle

A key difference of Appointment-based and online tutoring formats compared to walk-in tutoring is that appointment and online tutors utilize the 12-step Tutoring Cycle. MacDonald (1994) developed a stepwise tutoring method that starts from greeting the student and ends at closing remarks. This cycle encourages students to become independent learners. The NOVA Academic Support Centers have developed a series of training modules on the 12-step Tutoring Cycle that must be completed by all new appointment and online tutoring team members. The training modules are located are the ASC Blackboard website and further instructions on how to log on to the website will be provided during training.

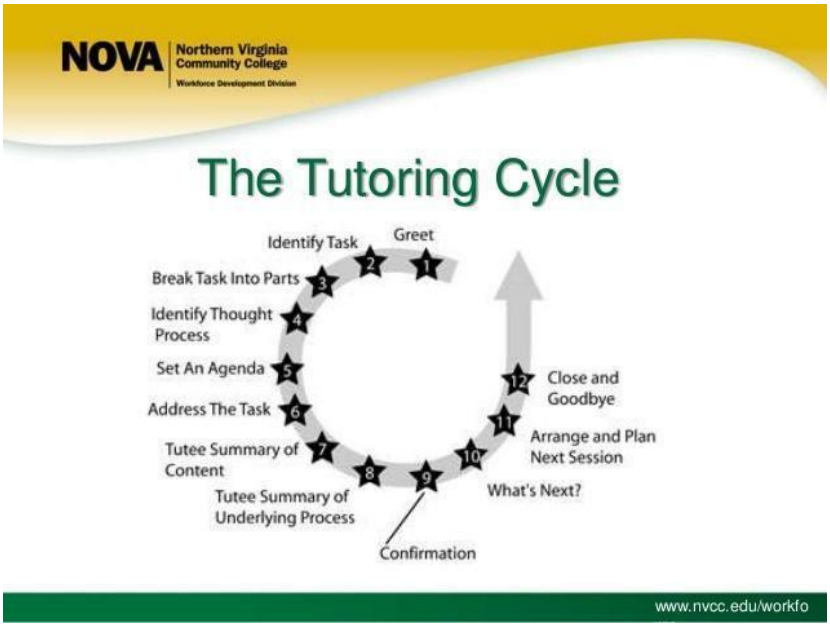


Figure 8.. Diagram of the 12-step tutoring cycle

7. Dealing with students and others at work/ how to handle difficult situations

Some days, working at the Math and Science center and tutoring students are great. The tutor/lab assistant loves his/her supervisor, colleagues, and the students so much that he/she doesn't want to leave the center, even though his/her shift are over. However, some days, the tutor/lab assistant just wishes that his/her shift is over really soon so that he/she can get out of the center and stay away from the difficult students or someone that gives him/her a hard time at work. These are typical situations that a tutor/lab assistant will encounter when he/she works long enough at the MSC. Here are some tactics that a tutor/lab assistant will find helpful when he/she wants to handle intense situations. In difficult situations, an effective tutor/lab assistant should:

- Begin in a friendly way. SMILE. ☺
- Ask the student what his or her concern is. When asking the student, look at his or her eyes and listen intensely. A tutor/lab assistant should wait for his/her turn to speak. If the individual/student is still talking, it is probably not the tutor's turn to speak yet.
- Find an appropriate solution that makes the student feel important to solve the problem after listening to the student.
- Be honest and sincere.
- Admit his fault frankly.
- Avoid arguments with students and co-workers.

- End in a friendly way. SMILE. ☺

It will take time, patience, and practice to get a tutor/lab assistant comfortable and in control of sensitive moments at work. A famous book on how to effectively interact with people daily by Carnegie (1964) is a great guide if a tutor/lab assistant wants to study about personal skills. Please see the recommended reading in the index for the book's information.

NOVA Cares

In some instances a student may be particularly disruptive to the center or cause the tutor or lab assistant to feel threatened. Further, a student may disclose personal information to a tutor that may indicate that a student may be in an unsafe emotional disposition or a danger to him/herself. In these cases the lead tutor and center supervisor need to be alerted of the situation and a NOVA cares form should be completed to alert NOVA Cares officials that they need to intervene for the protection of the MSC staff and the student. The NOVA Cares form can be completed by any staff member or the center supervisor and is located at:

http://www.nvcc.edu/novacares/

The NOVA Academic Support Centers have developed a training module on the NOVA Cares process that must be completed by all new appointment and online tutoring team members. The training modules are located in the ASC Blackboard website and further instructions on how to log on to the website will be provided during training.

In your own words write an action plan of how you will respond to difficult student or individual.

8. Tutoring Do's and Don'ts

MSC tutors experience a number of situations when they work with students. This section contains a collection of quotes from tutors detailing the set of skills they felt were critical when dealing with students:

"I try to remember to ask if the students have read the book and looked at the examples, and to recommend that they do. Many students don't think they have time, but if the book is read well and the examples are followed, they can self-teach a lot of material. I think if we keep asking, some will start to read the book. Much of the material I explain to the students is in the book and is well explained and shown with examples. Most of my students have not read the book."

– Deborah Roney

"… if there's one thing I've learned in my short time as a tutor, it's asking the other tutors for back up when you need it. As tutors we're expected to know so much, especially new tutors. I'm not afraid to admit Shohin is better than me in calculus, but I'm pretty good with physics. When we run into a tough problem, we usually tag team it. Working in the tutoring center is a team effort."

– Ahad Hassan

"As a tutor, I think this is important to guide the students through the problems they have. For example, some students may not be able to make a connection between their notes, the examples in textbooks, and their homework. Showing them these key points and knowing how tackle their problems is one simple-looking skill for a tutor that helps many students. By teaching them how to get prepared and to do their assignments, they may even be able to solve their problems solely!"

– Nooshin Bashiri

"...my suggestion is to make our center a professional and friendly zone. We should learn how to help the student emotionally (as in encourage them) and reduce the space between tutors and students."

– Quỳnh Anh Lê

"My first suggestion is to begin the session causally. I personally usually make small talk. I've found that often students are nervous and aren't open to learning or understanding the course concepts immediately. However, by starting with something completely different, even off topic conversation, the student may be more willing to actively participate and feel more confident in their knowledge later.

My second suggestions is to learn how the concepts connect and build on each other especially in science or biology, since often in a session the student will need help connecting them. Many students may already know the facts, but not the logical order. You could imagine letting the students then put the pieces together themselves. By having them "put the puzzle together themselves" they are more likely to remember and this is a technique they can use themselves.

– Kathy Nguyen

"During my tutoring process with NOVA students, I believe that mutual respect and the tutor's patience are the two important aspects that lead to an effective tutoring session.

I also think that mindful listening to the students' questions, and patiently leading the students to solve the problems by themselves are not easy to do, yet very important. "

– Thi Nguyen

"There are many skills that a tutor has to or needs to have in order to be a GOOD tutor. First of all, the important skill of a tutor is to know his/her subject well (but [he/she is] not expected to know literally everything). Other aspects include personality and/or tutoring approach technique such as being courteous, friendly, likable, respectable, listening, and, I would say, innovative when it comes to explaining materials which a student finds difficult to comprehend."

– Shohin Khamidjanov

"For now I [can] come up with 2 skills which I think are important for tutoring:

1. This one relates to a tutor's behavior. A good tutor should know how to be patient and objective all the time. Many students are aggressive and are not patient [enough] to listen to everything the tutor says. So they usually behave with no respect and keep saying "I don't understand." Normally, the tutor would also get mad and respond like "an eye for an eye" to the

student. This is not wise at all as this would only add more gas to the fire. We have to understand that it is not easy for students to listen because, in someway, it means that they admit they are at the lower level than the speaker. In order to eliminate this prejudice, tutors should learn to be patient at all times and keep encouraging the students that they can do this!

2. This one is about reference. Tutors usually tutor base on their memories. Laws, theories, facts, examples often come from their memories, Hence, they are usually not 100% correct and confusing. Certainly, saying something from your memory makes you feel more comfortable, powerful, and faster than looking it up in a hundred-page textbook. But who can guarantee that your memories are always correct? And who would be responsible if the student failed his class because the tutor's small misconception? Therefore, I suggest that the tutor take advantage of the textbooks since they are accurate, more reliable (and you have something to blame on if the student gets a bad grade)."

– Tho Nguyen

"One of the most essential characteristics for any tutor is to have a versatile framework, meaning that tutors let students' ways of understanding be the "railroads" of tutoring sessions and don't tie the students into their own ways. In particular, a tutor can ask the student to show how he/she would do the problem till the point where he/she gets stuck. The tutor, after following the student, would figure out the "path" the student chooses to work on his/her problem (since people instinctively choose the paths which are most comprehensible to them) then help him/her move on. Afterwards, the tutor can tell the student his/her own way to solve the problem for reference.

This method, in my experience, can be beneficial to BOTH students and tutors. For students, it would help them truly understand the material to solve more complicated but similar problems. For tutors, it would strengthen their knowledge because they may learn, from the students, of new ideas or new ways to solve their future problems or to cope with different students. We have an infinite amount to learn from each other."

– Nhien Tran

Some of our experienced tutors, Wlodozimierz Lipinski and Dr. Richard Priest, have assembled a list of items or skills that helped them become the successful tutors they are today. Below is a shortened list of qualities that are significant for new tutors to learn:

1. *Immediately find important weak points in math knowledge and ask to go over information that parallels the current course.*

2. *Praise any success of a proper solution.*

3. *Encourage your student that he/she can achieve an A grade in math but it can take weeks, months or a year of proper studying. It is dependent on each student's ability to concentrate, stay motivated, and the student's workload or number of classes.*

4. *Always check answers of problems solved. If it is wrong, ask the student to repeat or walk thru the problem with the student. Never leave an unfinished problem, without a good solution.*

5. *If you are having difficulty solving the problem, ask another tutor for assistance or take the information home with you and ask the student to come back the following day, or after hours* (Lipinski, Personal Communication, 2015).

6. *Give hints in various forms. I will remind students of formulas. Physics example: Do you think the v squared formula might be helpful here? Chemistry example: Do you remember how to set up the reaction quotient? Math example: Remember, the vector cross product is orthogonal to both multiplicands.*

7. *If you get into a detailed explanation, make drawings (in the spiral notebook) and write equations to illustrate what you are talking about. I have found that a mechanical pencil is best for this – the erasers are good. Sometimes the student will ask for the pages – just tear the pages out and give them to the student. Students should be encouraged get in the habit of doing this for themselves – it really helps to organize thinking. However, it is a tough sell.*

8. *Help the students to recognize when a problem must be broken down into two or three parts to get the final solution. Quite often, different approaches are required for each part and results from the first part feed into the second (*Priest, Personal Communication, 2015).

Review each tutoring do and don't. Which three statements will you keep at the forefront of your mind as you begin your role as a tutor?

9. Part I Conclusion

MSC Tutors, thank you for your determination to be an effective tutor and for your patience in reading the *Book of Everything* this far. We hope you have enjoyed the book and that you will see the book as your best friend and will revisit these pages in the future as you go on doing great things for the students at NOVA, for the Annandale Math and Science Center, and for yourself. Remember that by having a good time and doing well for others, a tutor is doing well to his/herself and is living fully.

Now, we will conclude this section with the following article by Cleveland (2008), "What Socrates Would Say to Undergraduate Tutors," in which he shares his experiences in directing a tutoring center and training peer tutors. Cleveland is the director of the tutoring center at the Center for Academic Excellence at Pace University's New York City campus.

> When we talk about education, and about tutoring in particular, we often speak of the Socratic Method. Often what we mean when we refer to that method is simply something like a question-and-answer format. But in my years of overseeing a tutoring center and training peer tutors, I have found that such a simple explanation is not enough to understand some of the tensions involved in undergraduate peer tutoring.

There is an unmistakable disconnect between the way most students perceive our services and the way we deliver quality tutoring — a misunderstanding that leads to a low-grade but palpable tension in the tutoring center. The conflict between those two viewpoints is ages old and perhaps best illustrated by the Socratic dialogues themselves.

In The Euthyphro, for example, Socrates and a young priest discuss at some length the true nature of piety — yet at the end of their dialogue both men remain stumped as to the correct answer. Although their argument ended in incompleteness, near irresolution, Socrates is unswayed and wishes to pursue the argument again. His true task, after all, is critical inquiry, not simply arriving at a conclusion. Socrates asks his student to begin the discussion again, but to his surprise and disappointment, Euthyphro — who exhibits behaviors and habits of mind quite similar to those of many present-day students — answers, "Some other time, Socrates, for I am in a hurry now, and it is time for me to go."

That hurried and harried demeanor is something we see in many of our students, who often come to the tutoring center in desperation, looking for quick answers and a regurgitation and recitation of several weeks' worth of material. But instead of just giving students the quick answers they seek, we try instead to teach them a process — the process of learning how to learn. Our tutors are trained to resist passive learning on the part of tutees, and to involve students in the reassembly of the knowledge they have already gained in their classes and readings. Tutors learn to ask lots of questions to force students to recall, use, and process that prior knowledge. Questioning the students also breaks the familiar classroom pattern of passive listening, encourages them to engage in the subject matter, and helps them verbalize what and how they think. When students talk about what they know, what they're learning, and what they don't understand, they become the center of the learning process.

When I train new tutors, I show video clips from real one-on-one tutoring to demonstrate the difference between active and passive learning, then ask the new tutors to tell me what they observed about the positioning of the tutor and the tutee. Nearly everyone notices that the tutor in the video sits back, guiding and coaching the student along, while the tutee works through the homework set. I mention to them how much more effective and educational that is than the opposite approach — when the tutor furiously works away at the homework instead, while the tutee leans back and passively watches.

I recently discovered a telling statistic after surveying students who use our tutoring center: Sixty percent did not think that using the tutoring center helped them to develop thinking skills. Perhaps some of our tutors don't do a good enough job of the kind of Socratic Method that I advocate. It may be that they, too, think tutoring is mostly about getting the answer rather than the process of understanding. But I also think that many of the tutees project that attitude when they walk in the door, and the tutors simply find it easier to give in rather than do the hard work of getting the students to engage their own critical-thinking skills.

Again I turn to Socrates to explain the ideal relationship between tutor and student. In Plato's dialogue The Theaetetus, Socrates says: "I am so far like the midwife that I cannot myself give birth to wisdom, and the common reproach is true, that, though I question others, I can myself bring nothing to light because there is no wisdom in me. ... It is clear that they have never learned anything from me. The many admirable truths they bring to birth have been discovered by themselves from within. But the delivery is heaven's work and mine."

Tutors cannot learn for students just as midwives cannot give birth for their patients. Nor do they need to, in many cases: Socrates believed that most of his interlocutors already had knowledge within them, and if they were open to his probing, that knowledge would emerge. I suggest that we understand tutoring the same way.

I tell tutors, tutees, and faculty and staff members that using the tutoring center should not be a last resort. It should not be the place where people go to put Band-Aids on gaping wounds. Moreover, the tutoring center is not just for the down-and-out, struggling students. Even

honors students can benefit from using the tutoring center by shoring up their knowledge and honing their study skills.

Likewise, I explain to new tutors that their job is not to teach. It's too much responsibility for them to teach college-level material; they are not expected to be experts and professionals. Rather, their job is being a Socratic coach. Such tutoring, if done well, augments classroom instruction.

What I try to do with the tutoring center is carve out space that allows for a deeper, more substantial approach to education to take place. In doing so, I hope to change bad habits and attitudes so that students can consciously and reflectively engage their own educational experience.

I believe that Socrates' method — while painful for tutors and students alike — is the better way. It creates a community of learners and encourages them to engage in dialogue with one another (Cleverland, 2008).

Part II: Training for Lab Assistants

"Treat everyone with politeness, even those who are rude to you- not because they are nice but because YOU ARE NICE" (Unknown, n.d.)

1. What is a Lab Assistant?

The role of the lab assistant is far more than simply telling students to sign in and sign out of the center. Lab assistants complete four key functions that are vital to the center:

- **Communication**. Lab assistants are the frontline in-person, phone and online communicators of the center. All appointments are scheduled through the lab assistants and when new students enter the center, they receive instructions of how to receive services from lab assistants. Therefore, lab assistants are expected to always have a positive attitude and be knowledgeable of the center's policies and procedures.
- **Tracking.** Lab assistants track service usage by ensuring that all students sign in, sign out, and select the appropriate service. This function is fundamental to the center because data from service usage helps to determine the amount of resources the college allocates to the center. In addition, the usage data helps to determine hours of operation, number of tutors working at a given time, and program efficacy.
- **Tutoring service management.** Lab assistants not only alert appointment-based tutors of waiting students, they also help manage the board that tracks which students have asked questions when. Without the management of the board system, students become inpatient and disgruntled with wait times for walk-in tutoring.
- **Customer service.** Lab assistants are often the first staff members approached with student complaints. Thus, lab assistants must be calm at all times and always focused on displaying a positive demeanor as the primary customer service representative of the center.

In your own words, describe the four key functions of a lab assistant.

2. What Good Lab Assistants Do?

Accudemia

Accudemia is an online tracking system that records and reports student and tutor information, service usage data, and scheduling information. Since Accudemia reports are used in requests for college resources and in management of tutoring appointments, it is imperative that lab assistants be knowledgeable of how to correctly input information onto the Accudemia system.

Why is the Accudemia tracking system of high importance to the center?

Students sign in/out

To make sure that every student signs in and out, lab assistants need to familiarize students with the sign-in station. The process is not difficult or complex, but is significant.

- **Sign in.**

Students sign in by type in their NOVA ID number, which contains 7 digits, into the blank rectangle (Figure 9)

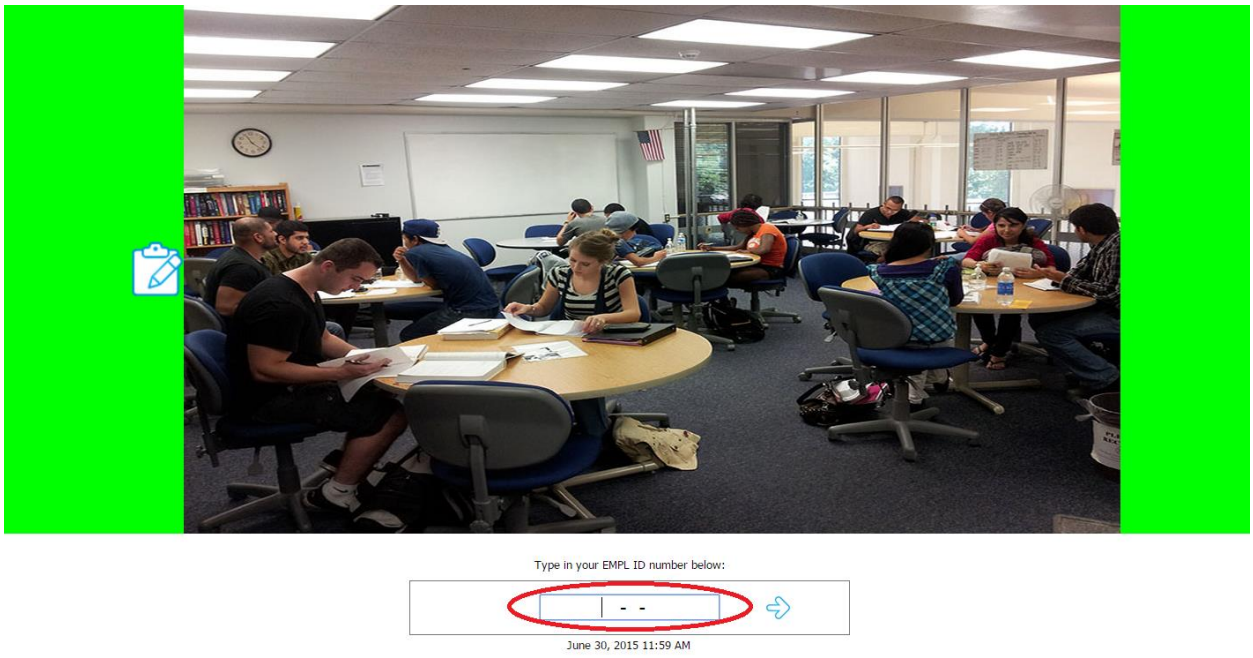


Figure 9. Front page of the sign in process.

- When he/she finished, remind them to click the symbol (pressing Enter will erase what he/she typed in)
- If he/she is the first-time visitor to the center, the page for new student will appear (Figure 10)

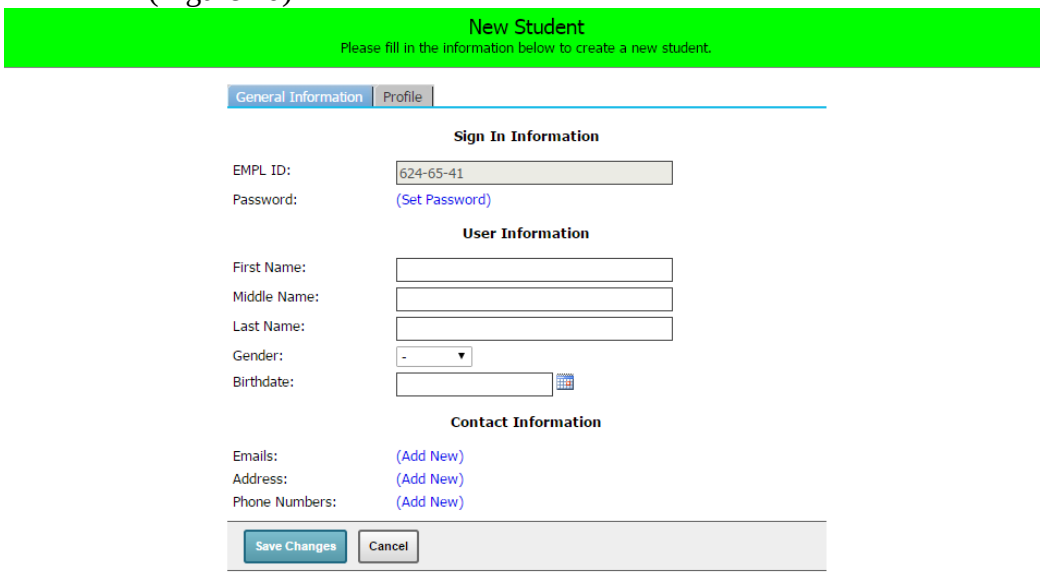


Figure 10. First time visitor information page.

Lab assistants should ensure that this new student provide the system with their first name, last name, birthdate, email and phone numbers for further contact. Other fields are optional.

Then, click 

After filling in this page and save changes, another page will appear (Figure 11). This page will also turn up when a come-back student type in his/her ID. This means that when the new student comes back, he/she will not have to fill out the page above, instead will see this page below:

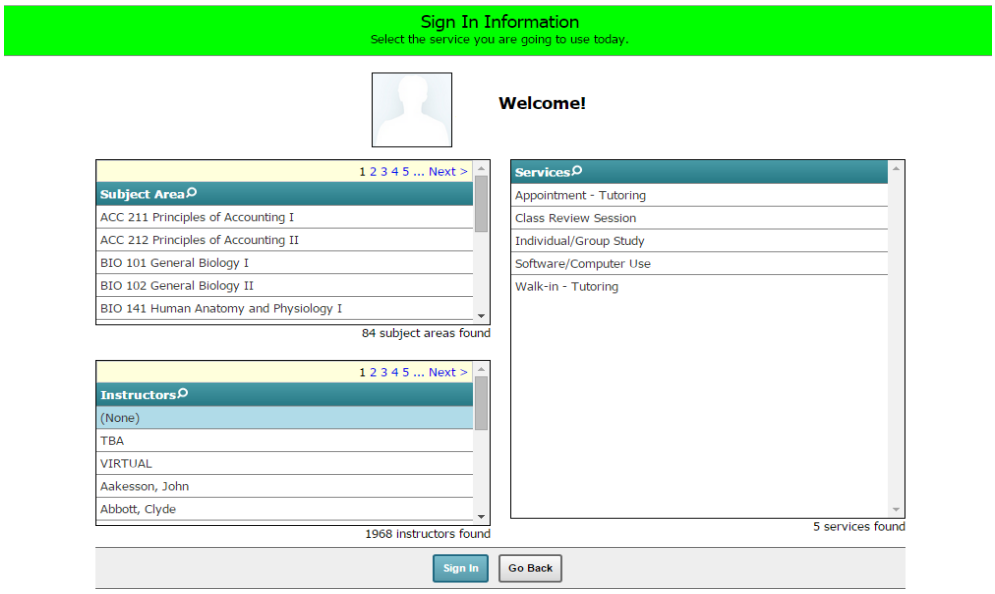
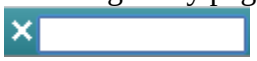
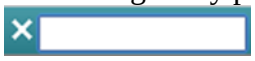


Figure 11. Page to select the course and service needed.

- Subject area: ask the student to choose the subject he/she needs help with. To avoid browsing every page for the subject, click on the symbol. Then the search bar  will appear. Use this search bar to simplify the process.
- Services: ask the student to choose the service.
- Instructors: ask the student to provide the system with his/her instructor's name. To avoid browsing every page for the subject, click on the symbol. Then the search bar  will appear. Use this search bar to simplify the process. If the student takes his/her current class in another campus, the system may not have that specific instructor's name. In such case, the student can choose TBA.

It is recommended that the student signs in by the order listed above. Otherwise, options which the student chose can be erased.

When he/she finished, click 

.

- **Sign out**

Students sign out by the same page that they signed in with their NOVA ID number. This process is the same as signing in. But when they click the  symbol, this page (Figure 12) will appear:

Figure 12. Sign out page.

To finish signing out, click 

What fields do we require first time visitors to complete on the New Student Sign-in screen? How can a student avoid browsing every page of a subject area or instructor?

Appointment scheduling

One of a lab-assistant's main responsibilities is to make appointments. Accudemia offers functions to make this task efficient. There are three ways to schedule an appointment: new by tutor, new by date, and manual.

- *New by tutor*. This option allows lab-assistants to make new appointments based on each tutor's availability. From the menu on the left of the Accudemia Home Page (Figure 13), you can see the *Appointment* selection. On moving the mouse to the *Appointment* selection, another sub-menu will appear:

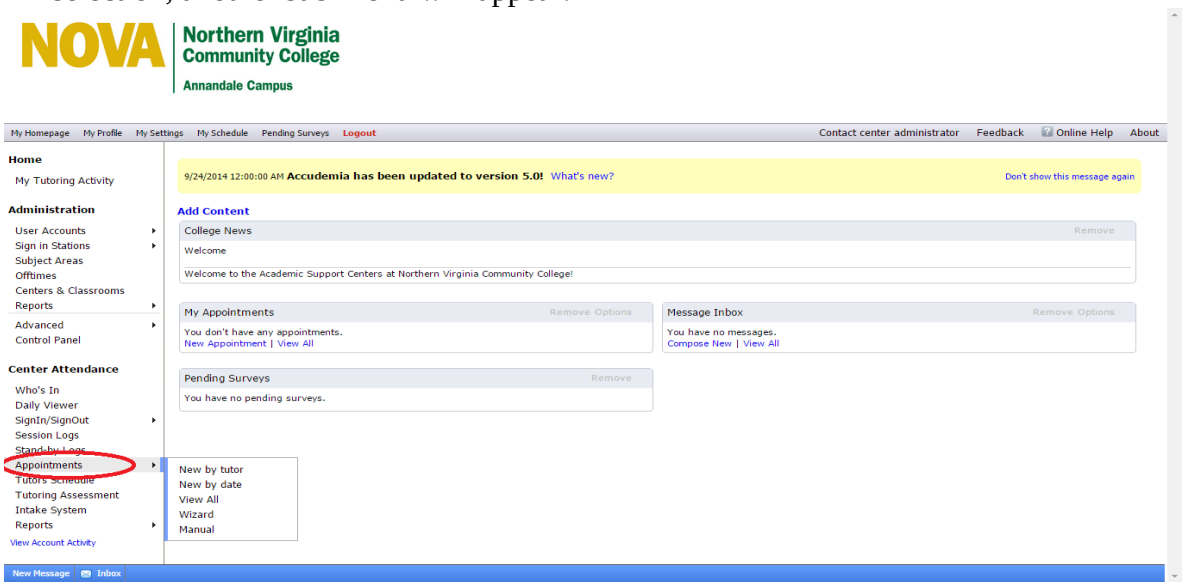


Figure 13. Accudemia home page.

- After choosing *New by tutor*, a filter page (Figure 14) appears in order to narrow down the subjects.

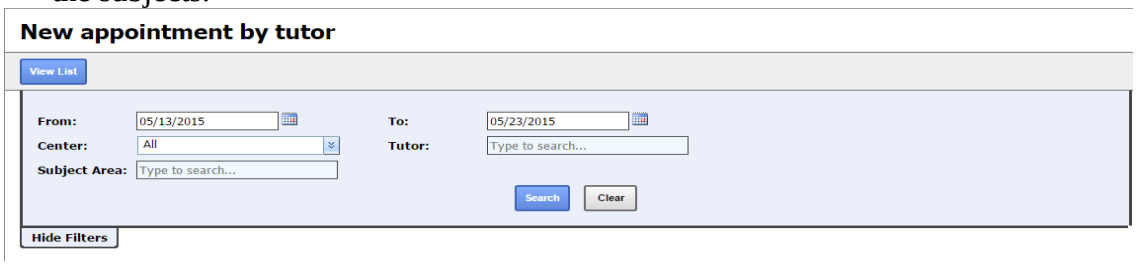


Figure 14. Filter bar by-tutor on appointment page.

- There are 4 categories of the filter:
  - Date: including From and To date. As default, the date is usually from the current date to 10 days after the current date. You can change this by clicking on the  symbol.

- Center: to select our center, click on *Math and Science Center* option (Figure 15).

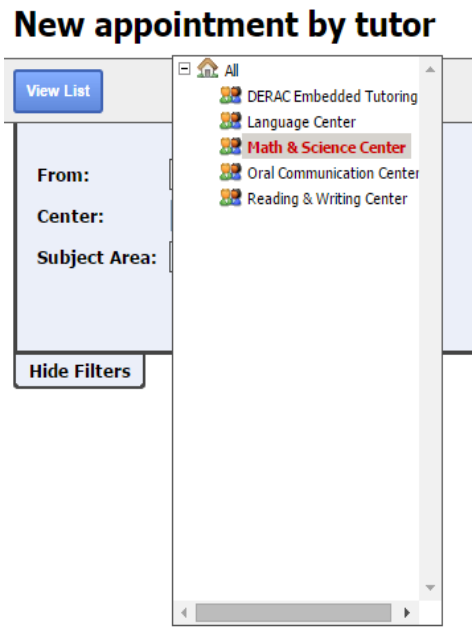


Figure 15. List of Center options.

- Tutor: you can search for a specific tutor by this filter.
- Subject Area: this filter helps the lab-assistant look for tutors who offer help with specific subject.

- After filling in the filter, click on the Search button to continue. A results page will appear (Figure 16). In this page, names of tutors that match your search will appear.

Figure 16. Example list of results.

- Click on a tutor's name to open his/her time table (Figure 17). The green rectangles indicate availability and the red rectangles indicate previously scheduled appointments.

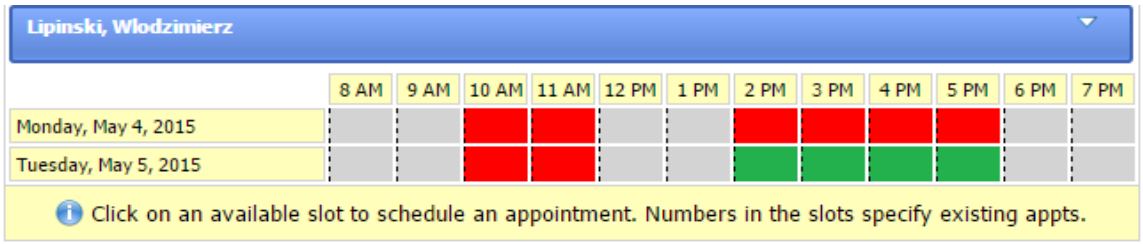


Figure 17. Example time table of an appointment tutor.

- To schedule an appointment at a certain available time, click on a green rectangle (Figure 18). A pop-up will appear.

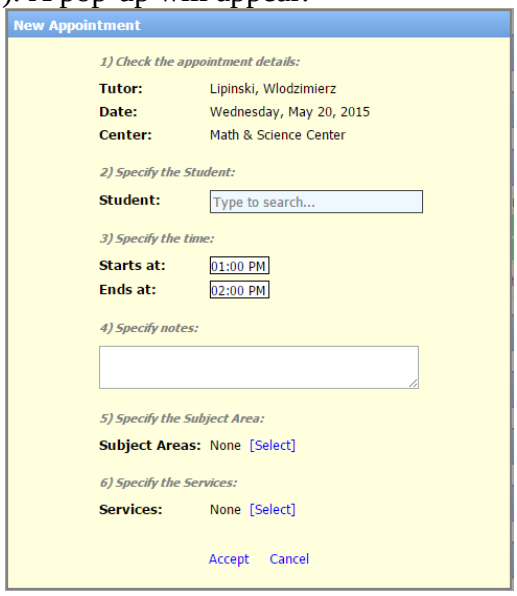


Figure 18. Sample table of an availability slot of an appointment tutor.

  - Student: Search for student's name here
  - Specific notes (optional): lab-assistant fill in this space with the specific problems or chapters the student wants to work on.
  - Subject Area: click [Select] to choose subject which student wants to make appointment.
  - Service: click [Select], and then choose *Appointment – Tutoring*.
- Then click Accept (do NOT press enter, it will erase all your update and close the pop-up).
- After that, if this table appears, it indicates that the appointment is successfully scheduled (Figure 19).

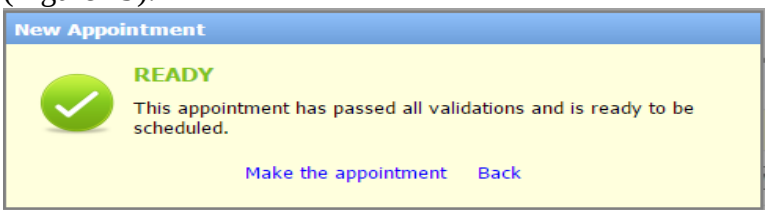


Figure 19. Pop-up that indicates successful appointment scheduling.

- Otherwise, this pop-up will appear (Figure 20):

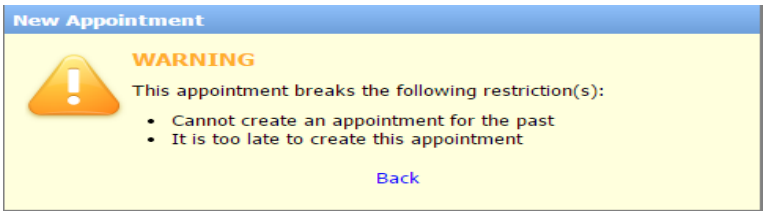
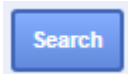


Figure 20. Pop-up that indicates unsuccessful appointment scheduling.

- If the appointment cannot be made due to reasons stated above, you can refer how to fix this problem from the first issue in *Misconceptions*.

- *New by date*. This option allows lab-assistants to make new appointments based on specific date:
- After choosing the option, a filter page appears in order to narrow down the subjects (Figure 21):

Figure 21. Filter bar by-date on appointment window

Fill in the filter as shown above (New by tutor), then click 

and the result will be the names of the tutors that have availability on that specific date (Figure 22):

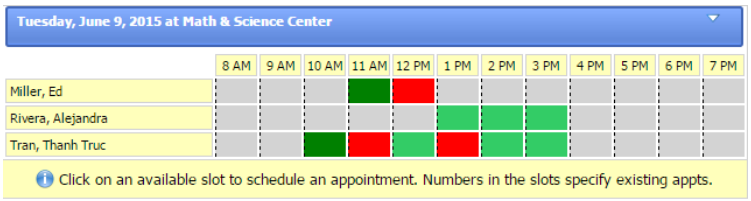


Figure 22. Sample table of appointment tutors available by day.

- *View all*. This option allows lab-assistant to view all the scheduled appointments and their details.
- After choosing *View All*, a new page (Figure 23) contains information of all appointments of every center for the next seven days (default) beginning from current day.

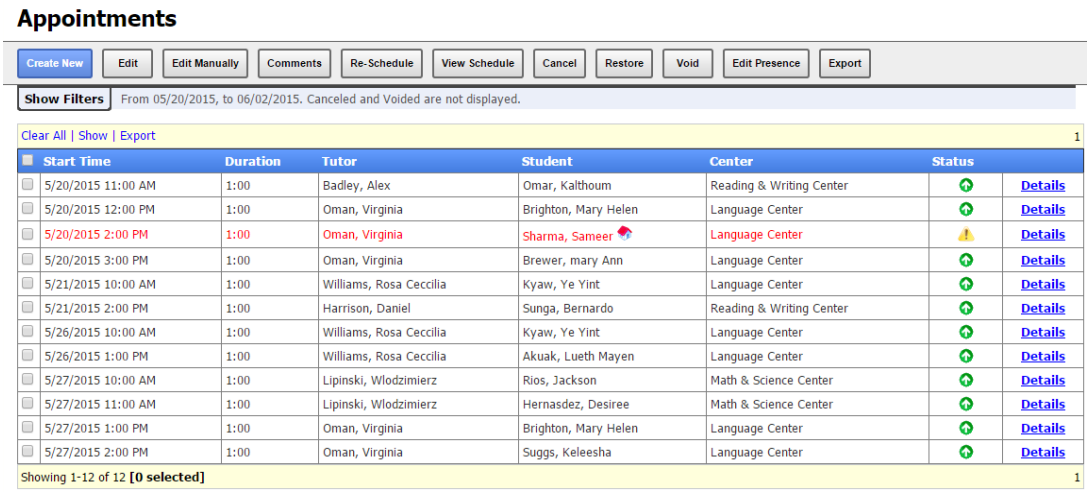


Figure 23. Sample page of general appointments information.

- To focus on *Math and Science Center*, choose **Show Filters** (Figure 24):

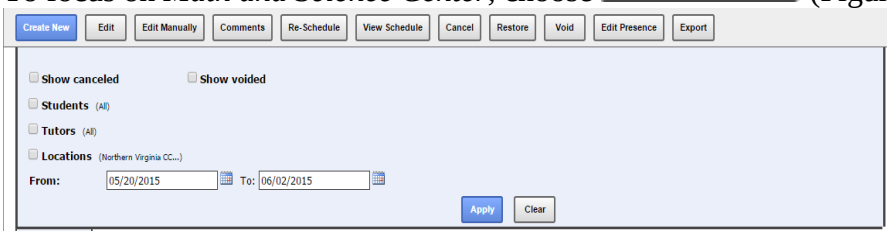
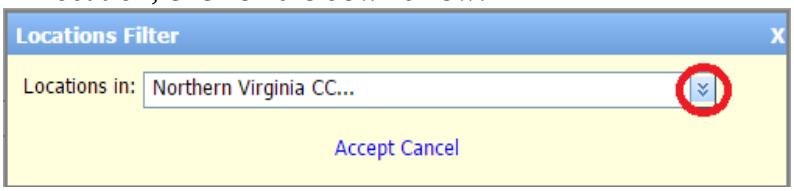
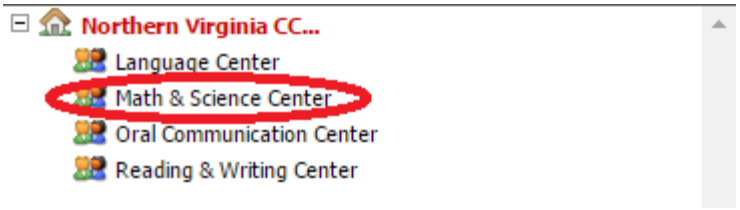


Figure 24. Filter to appointment information

- In *Location*, click on the down arrow:



- Then choose *Math and Science Center*:



- Then a new page comes up which includes details of appointments that match your filters (Figure 25).

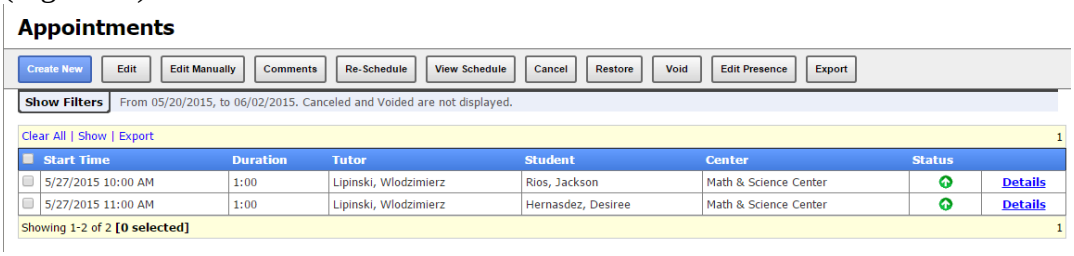


Figure 25. Sample results from filtering appointment information.

During your shadow experience, schedule an appointment using the new by tutor, new by date, and manual methods.

Session Logs

- From the menu on the left of the *Accudemia Home Page*, you can see the *Session Logs* selection (Figure 26).
- This function allows lab-assistant to keep track of students that signed into the center via sign-in stations.
- Lab-assistants' main responsibility is to make sure that students sign in when they enter the center and sign out when they leave. Only then, *Accudemia* can keep track of students who visit the center.
- After choosing *Session Logs*, a new page appears that shows students signed in from every center and from the former week as default. To narrow down the object, click on **Show Filters**
- Then a filters table scrolls down (Figure 27):

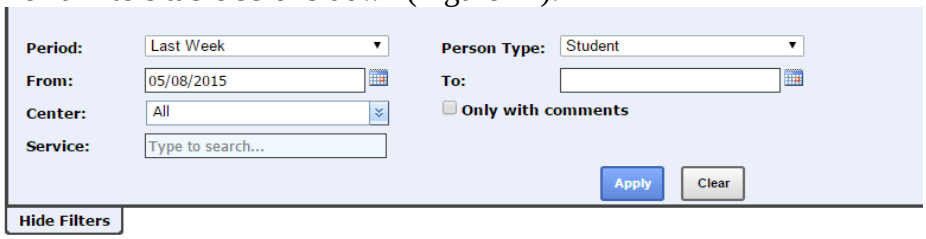
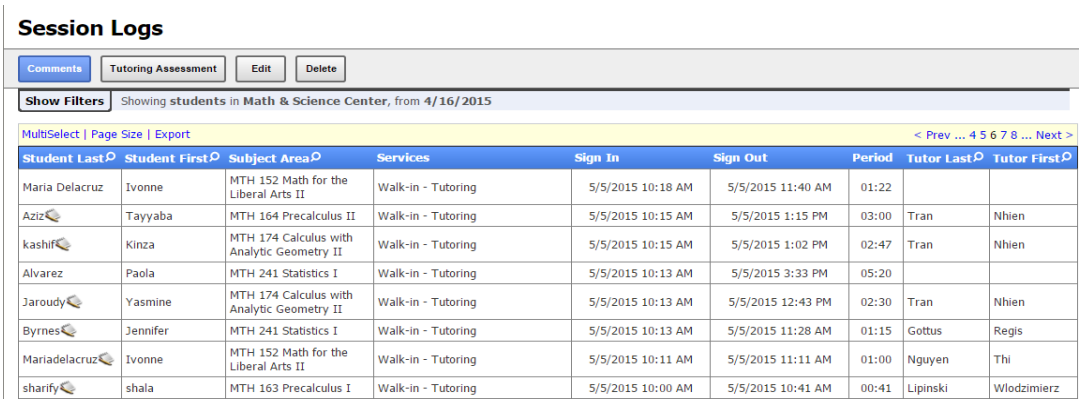


Figure 27. Filter for session logs page.

Figure 26. Options pane on Accudemia home page.

  - Period: choose the time period you want to see session logs.
  - From: choose the date from which you want to see session logs.
  - To: choose the date to which you want to see session logs.
  - Center: choose *Math and Science Center*
  - Service: choose the service whose session logs you want to see.
  - Person type: student or tutor.

- When you finished, click **Apply**
- Then, a table scrolls down. This table (Figure 28) includes signed-in students with their information relevant to their purpose for coming to our center:



Session Logs

Comments | Tutoring Assessment | Edit | Delete

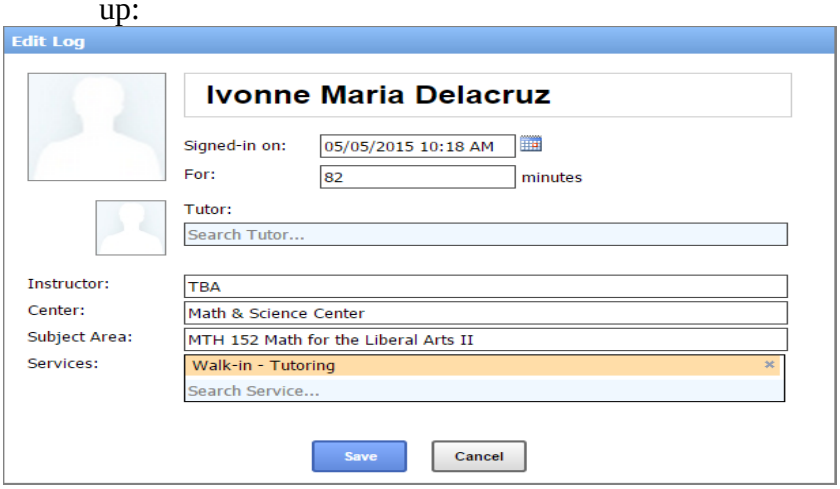
Show Filters | Showing students in Math & Science Center, from 4/16/2015

MultiSelect | Page Size | Export | < Prev ... 4 5 6 7 8 ... Next >

Student Last	Student First	Subject Area	Services	Sign In	Sign Out	Period	Tutor Last	Tutor First
Maria Delacruz	Ivonne	MTH 152 Math for the Liberal Arts II	Walk-in - Tutoring	5/5/2015 10:18 AM	5/5/2015 11:40 AM	01:22		
Aziz	Tayyaba	MTH 164 Precalculus II	Walk-in - Tutoring	5/5/2015 10:15 AM	5/5/2015 1:15 PM	03:00	Tran	Nhien
kashif	Kinza	MTH 174 Calculus with Analytic Geometry II	Walk-in - Tutoring	5/5/2015 10:15 AM	5/5/2015 1:02 PM	02:47	Tran	Nhien
Alvarez	Paola	MTH 241 Statistics I	Walk-in - Tutoring	5/5/2015 10:13 AM	5/5/2015 3:33 PM	05:20		
Jaroudy	Yasmine	MTH 174 Calculus with Analytic Geometry II	Walk-in - Tutoring	5/5/2015 10:13 AM	5/5/2015 12:43 PM	02:30	Tran	Nhien
Byrnes	Jennifer	MTH 241 Statistics I	Walk-in - Tutoring	5/5/2015 10:13 AM	5/5/2015 11:28 AM	01:15	Gottus	Regis
Mariadelacruz	Ivonne	MTH 152 Math for the Liberal Arts II	Walk-in - Tutoring	5/5/2015 10:11 AM	5/5/2015 11:11 AM	01:00	Nguyen	Thi
sharify	shala	MTH 163 Precalculus I	Walk-in - Tutoring	5/5/2015 10:00 AM	5/5/2015 10:41 AM	00:41	Lipinski	Wlodzimierz

Figure 28. Sample table of session logs.

- The symbol is used to search for specific student's or tutor's name or subject area.
- Student Last, Student First, Subject Area, Service, Sign In, Sign Out are automatically filled in by the system when the student signs in and out (hence, make sure the student signs in and signs out).
- Tutor Last and First name must be filled in by lab-assistants.
- To add tutor' name, double-click on student's name. A board (Figure 29) shows up:



Edit Log

Ivonne Maria Delacruz

Signed-in on: 05/05/2015 10:18 AM

For: 82 minutes

Tutor: Search Tutor...

Instructor: TBA

Center: Math & Science Center

Subject Area: MTH 152 Math for the Liberal Arts II

Services: Walk-in - Tutoring

Search Service...

Save | Cancel

Figure 29. Sample window of student information.

- In the Tutor bar, search for tutor's name. When you finished, click Save (do NOT press enter, it will erase all your update and close the board).
- This Edit Log board also allows lab-assistant to edit manually other sorts displayed in the board such as Duration, Instructor, Subject Area, Services.
- If student signs in under Individual/Group Study or Software/Computer Use, tutor's name can be left blank.

During your shadow experience, update the tutor cell of the session log with the name of a tutor who worked with a student.

Comments

- Another must of a lab-assistant is to give a student comment(s). Comments can be problems or chapters that students cover or what tutor think about that student or both. Lab-assistants can ask the student for comments when they are signing out or ask the tutor directly.
- To add comments, choose the student by clicking on his/her name, then click on Comments under *Session Logs* (Figure 30):

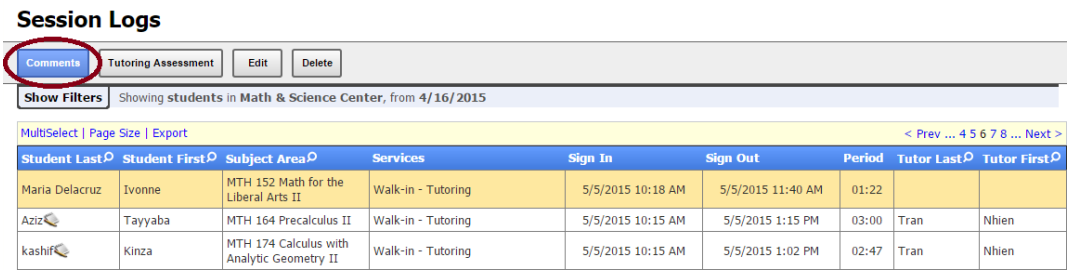


Figure 30. Location of comments button on session logs window.

- Then a pop-up (Figure 31) appears with blank space for comments:

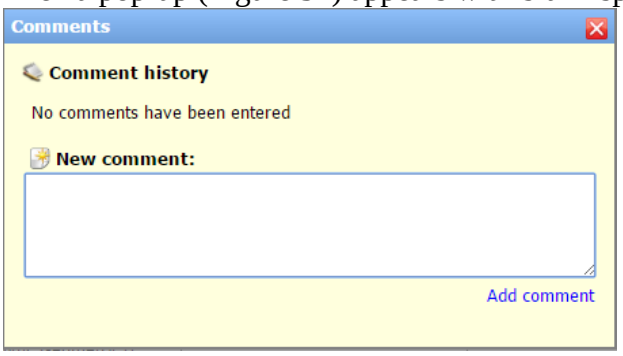


Figure 31. Comment pop-up window.

- After adding comments, click Add comment (do not press enter, it will erase all your update and close the table).
- This next to student's last name means comment has already been added for that specific student.

> ***During your shadow experience, add a comment to the session log for a specific student.***

Miscellaneous

1. **The system does not allow me to make a new appointment for this specific student, what should I do?**

- The system denies making a new appointment for a student usually for two reasons:
  - The student did not show up in a former appointment without announcement in advance to the center.
  - The student already has an appointment in that same week with the same subject.
- For the situation above, students are no longer able to make appointment unless he/she has the permission from the supervisor. In addition, if the student violates unintentionally (tutor could not show up, center closed due to inclement weather, etc.), lab-assistants can set up an appointment for the student (but please first find out why the student violated):
- In *Appointment*, choose *Manual* (Figure 32):

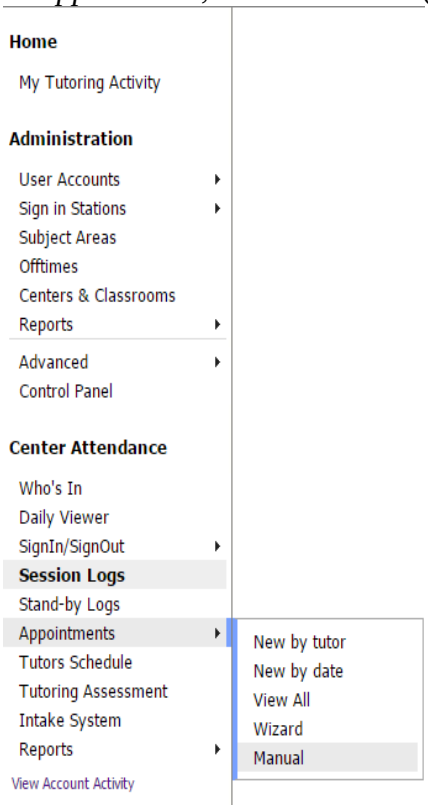


Figure 32. Options pane on Accudemia home page.

- Then a new page (Figure 33) appears:
  - Student: search for student's name.
  - Tutor: search for tutor's name.
  - Center: search for *Math and Science Center*.
  - Subject Area: search for subject that student wants to make an appointment for.
  - Services: search for *Appointment – Tutoring*.
  - Schedule on: click to choose date and hour.
  - For: appointments in the *Math and Science Center* usually 60 minutes long.
  - Comments: (optional)

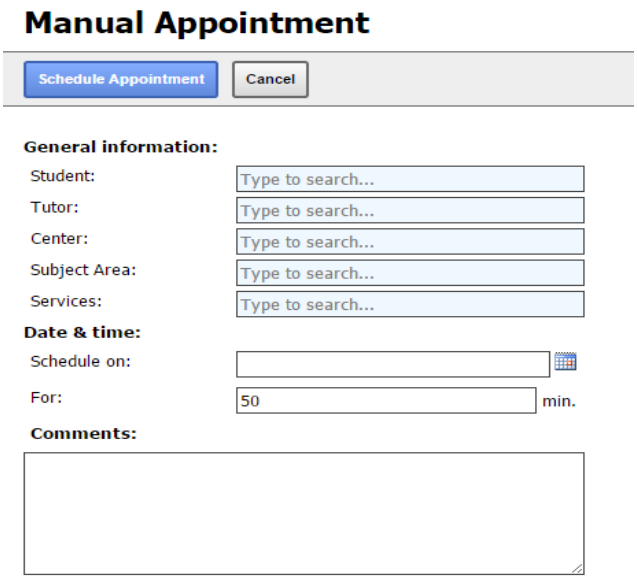
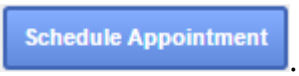


Figure 33. Window to make a manual appointment.

When you have finished, click 

.
Then another page (Figure 34) shows up and states that this appointment is violating the policy. To finish booking the appointment, choose 'continue anyway':

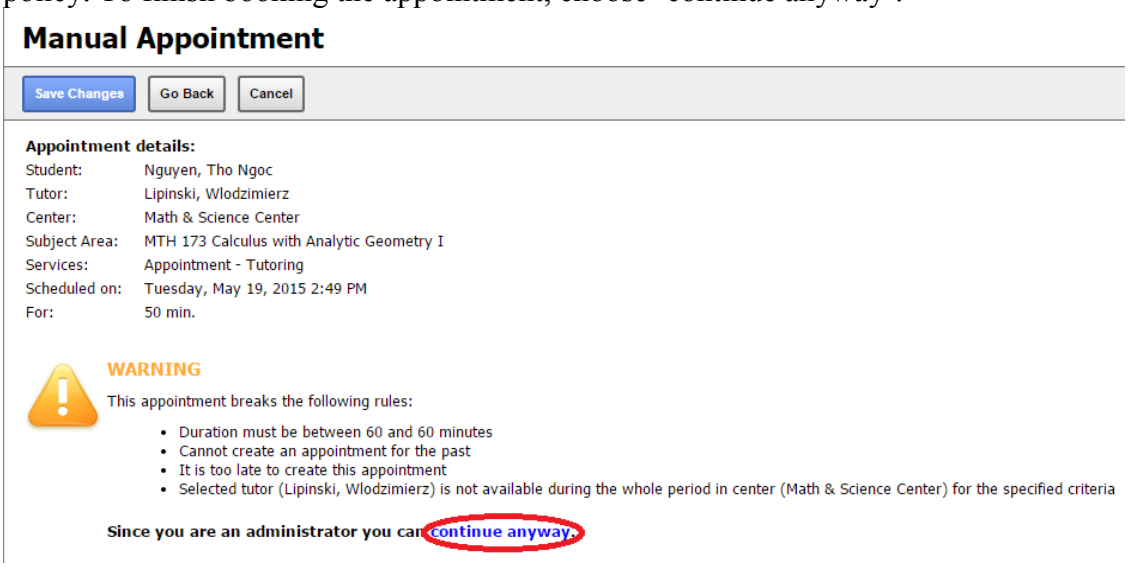


Figure 34. Manual appointment scheduling warning.

- Then choose 'Yes' (Figure 35):

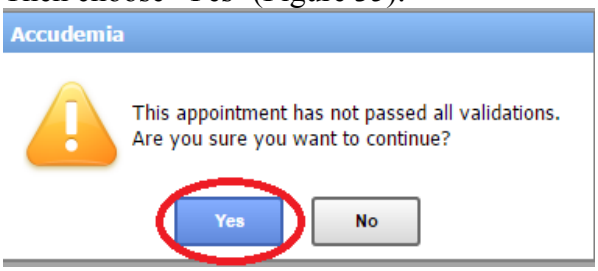


Figure 35. Pop-up warning window

2. A student showed up for his/her appointment but the system marked as no-show. How can I fix it?

- This problem can be inconvenient because the student cannot make another appointment if they have a no-show appointment.
- To fix this problem, go to *View All* in *Appointment* menu, do the filter and look for the student's name (Figure 36):
- Once finished doing so, click on the row contains the student's name, then choose '*Edit Presence'*

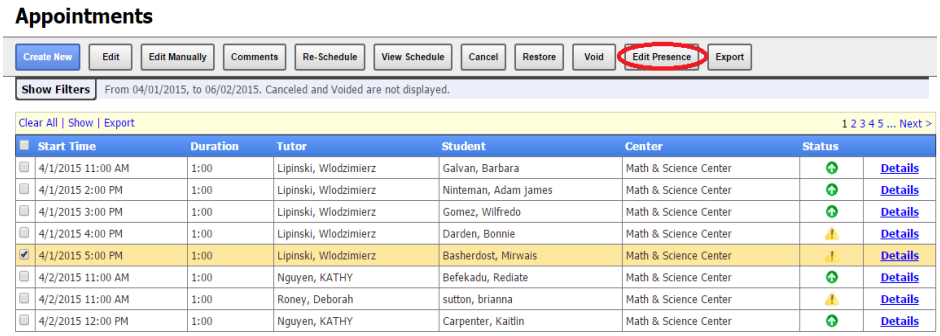


Figure 36. Sample table of appointment information.

- Then a window appears (Figure 37), choose '*Mark as Show'*:

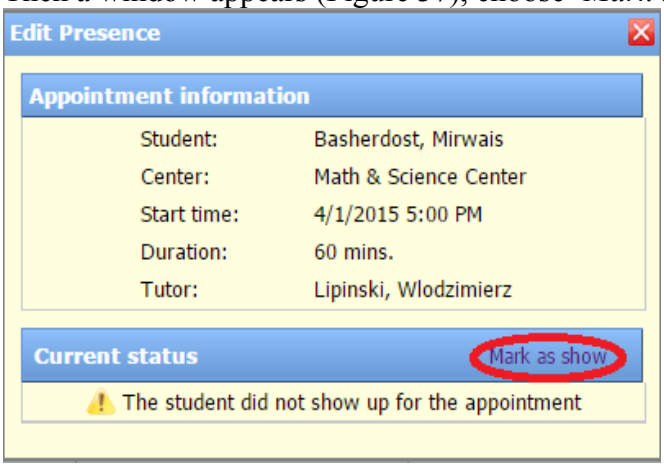


Figure 37. Presence editing window.

- To mark an appointment as 'Show' you have to choose the time period in which the student was inside the center (the student signed in and out).
- Click on the time period, then Save (Figure 38).

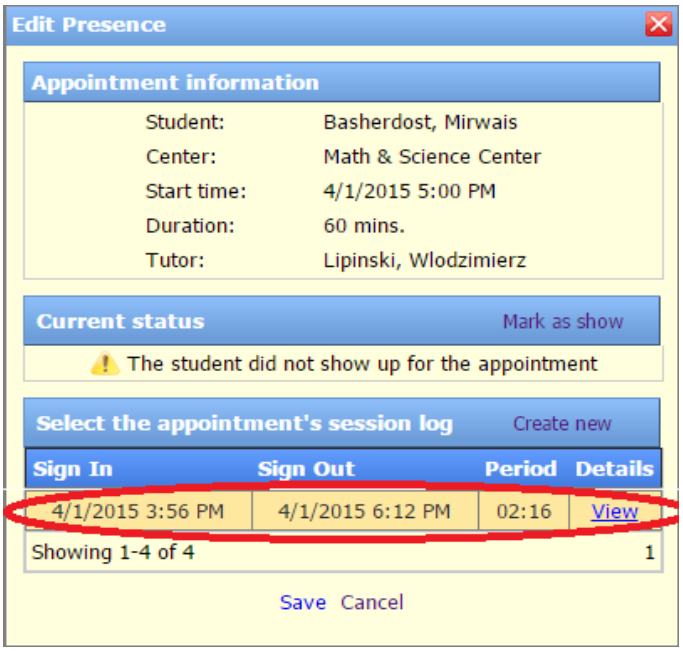


Figure 38. Edited Presence window.

What are the two reasons the Accudemia system may prohibit making an appointment for a student? Name one circumstance that the tutor can modify the attendance record on behalf of the student. Explain how to change a no-show on the appointment log.

Gmail: Email

Email etiquette

- Make sure all emails include a courteous greeting and closing. At the beginning of the email, refer to the student as Hello (Name) or Greetings (Name). Also at the end of the message, please say thank you or sincerely MSC.
- Address your contact with the appropriate level of formality and make sure you spell his/her name correctly.
- Spell check. Emails with typos are not taken seriously.
- Read your email out loud to ensure your tone is that which you desire.
- Be sure you are including all details and information necessary for recipients to understand your request.

During your shadow experience, type an email replying to a student.

Turn-away:

- Our center has busy days as well as low or normal days. On busy days, with the same amount of tutors as normal, we cannot help with every question, every student. Some students might have to leave after waiting for too long without being tutored. In addition, students leave as we do not offer help on their subjects. In such cases, lab-assistant's responsibility is to keep track of students who leave by using the turn-away tracking sheet.
- To open the Turn-away tracking sheet, first go to Annandale Math and Science Center's Google account, then go to drive.
- Scroll down and look for **MSC [semester] [year] Turn-away Tracking Sheet.**

During your shadow experience, update the Turn-away Tracking Sheet.

Website Link for Appointments

- If a student asks how to schedule an online appointment, share the following instructions:
  - Go to NOVA website: www.nvcc.edu
  - In the search bar on the top right, search for Annandale Math and Science Center, choose the first result.
  - Choose tutoring (Figure 39), then under "How to Schedule an Appointment, choose **Fill out the form**

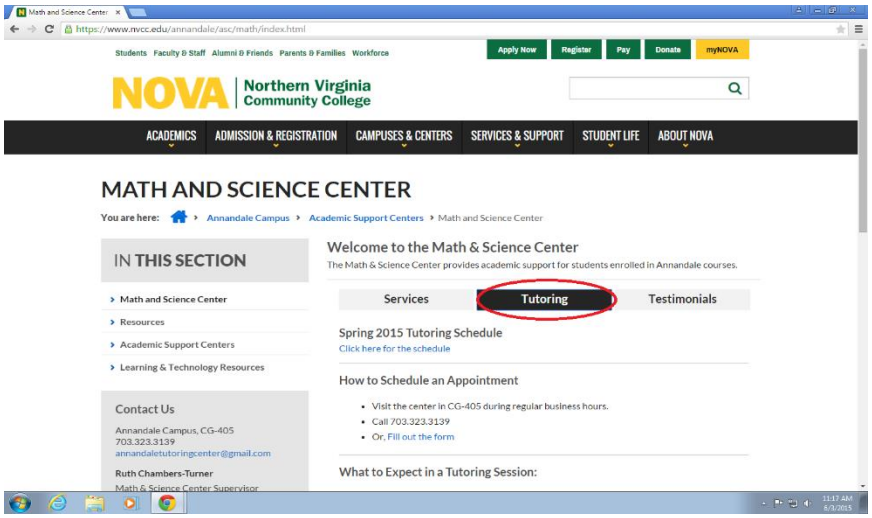


Figure 39. MSC home page.

- When a student makes an appointment online, the appointment request is automatically updated to the Appointment request sheet stored in the Center's Google Drive Account.
- As a lab-assistant, you must check this list frequently, respond to students' request by arranging appointments for them, and contact them if there is no availability.
- To open the Appointment request sheet, go to the Center's Drive Account, open the [Semester][Year] folder, then choose Appointment request (Responses).

During your shadow experience, check the Appointment requests sheet and schedule an appointment.

Phone messages and telephone communication.

Phone message

As a lab assistant, the first task at the start of your shift is to check phone messages. Any phone call before or after the center hours of operation will not be answered. Therefore, some students will choose to leave a message. If there is message that has not been opened, the red light will appear on the phone. To listen to messages:

- Press the Message button.
- Enter the password, end by #.
- When the message ends, you will hear the direction on what to do next (listen again, save, delete, etc.)

Phone messages are usually about the center schedule or types of service. In such case, lab assistants need the student's phone number or contact information to respond. Normally, the student leaves contact information in the message. If the student fails to leave contact information, the lab assistant can track his/her phone number by:

- Press the Directory button
- Choose Received Calls
- Looking for the phone call at the same time with the time of the message (which cited at the beginning of the massage)

Telephone communication

- How to use the phone:
  - Transfer call:
    - Let the person know that you will transfer his/her call.
    - Do not put the person on 'HOLD' (if you put the person on hold, you cannot transfer his/her call.)
    - Hit the *transfer* button.
    - Dial the number of the person you want to transfer the call to.
    - Hit the *transfer* button again.
- Telephone etiquette
  - Answering the phone
    - **Keep it professional**. When you are answering the phone at the center, you do not always know who is on the other end of the conversation. It could be the supervisor, a student, your colleague or even wrong number. Therefore, always answer the phone professionally.
    - **Focus on the conversation**. Stop whatever you might be doing and take a brief moment to prepare. Wear the face you want to project before picking up the phone. It makes a difference: whether you are smiling, frowning, or bored to tears, your caller will hear that in your tone.
    - **Always identify yourself**. It is appropriate to answer the phone with your name and the center name: "Good morning, thank you for calling Math and Science Center. This is AAA. How may I help you?" If it is an internal call,

and you know it (caller ID is presented on the phone screen), you can answer with your department and name: "Hello, this is Math and Science Center, AAA speaking. How can I help you today?" This will let your caller know they have reached the right person and that you are ready to assist them. Keeping a friendly, personable tone will make the call much more pleasant for everybody. Always project sincerity, no matter how silly the canned lines might seem. The caller will be able to tell the difference if you are enthusiastic, versus just reading a cue card.

- **Answer with an appropriate level of decorum**. Try not to speak too informally until you know who the caller is. If the speaker does not introduce themselves, say, "May I ask who's calling?" This is an accepted practice that not only lets the caller know they are being treated personally, it also lets you make a note should you need to contact that person again, or transfer them to another line. Do not delve into gossiping or personal conversations. There is no room for this in an office situation.
- **Listen carefully**. Find out the reason the person is calling and respond appropriately. If the person he/she is trying to reach is not at the center or is not available to speak, respond by saying, "I'm sorry, Mrs. AAA, Mrs. BBB is not available right now. May I take a message?" Be sure to record the person's name, phone number, and purpose of call. That way, if it is an important call, the issue can be dealt with as quickly and efficiently as possible.
- **Be wary of information-gathering calls.** If the caller requests details about the center or the staff, consider carefully before responding. Even if the caller gives a name and identifies his/ her company, you should be wary unless they are a trusted contact.

o Making a call

- **Always identify yourself properly**. When calling a student or a colleague, whether in person or leaving a phone message, always identify yourself properly with your name, the center name, and the contact telephone number. Also, be aware of people around you while talking on the phone. Someone next to you might overhear personal information.
- **Avoid leaving long messages.** Remember, someone has to listen to your message, write it down and act upon it. It is a good habit to write down or type out your message in advance. Keep it brief and to the point.

Develop a script for how you will answer the center phone. During your shadow experience, answer the phone using your prepared script.

The Board

The Board refers to the portable whiteboard located in the left-end corner of the center (next to the two big whiteboards). It is the "***student tracking system***" for walk-in tutoring (Figure 40). Based on the board, the tutors determine, in chronological order, the students who need help. In particular, here's a brief process of a walk-in tutoring session using the board:

- Student requiring help writes his/her **name** on the board, the **course** he/she is taking, and the **table number** he/she is sitting at.
- Tutor helps the students in the order listed on the board. If there are no tutors able to help the student with his/her course, the student has to wait and the tutor can move on to the next student.
- After finishing the tutoring session, the student's name is erased by that tutor or the lab assistant.

Figure 40. Student tracking system board.

If students **do not write** their names on the board, they may **not get any help** especially when the center is busy (students may also get upset). Therefore, **lab-assistants** are ***responsible*** for *providing* students with *knowledge* of the board when they sign in. Lab-assistants must also *notify* the students in the circumstances that there are no tutors who can help them, *erase* the students' *names* when their sessions end, as well as *rewriting* the board when it gets messy. REMEMBER LAB-ASSISTANTS, even though the board is an effective tracking method, you are still the most efficient trackers of all. So, *keep an eye on the students and their problems*.

In your own words, describe the purpose of the board. Why is it important for a lab assistant to not simply rely on the board alone for tracking students?

Textbook and Calculator Borrowing

Once signed in, students are welcome to use MSC computers and resources. Lab assistants are responsible for recording students' information to the *Resource Sign-out Sheet* form in the MSC's Google Drive (My Drive/Sign-out, Request, and Turn-away Sheets and Forms/Resource

Sign-out Sheet) (Figure 41).

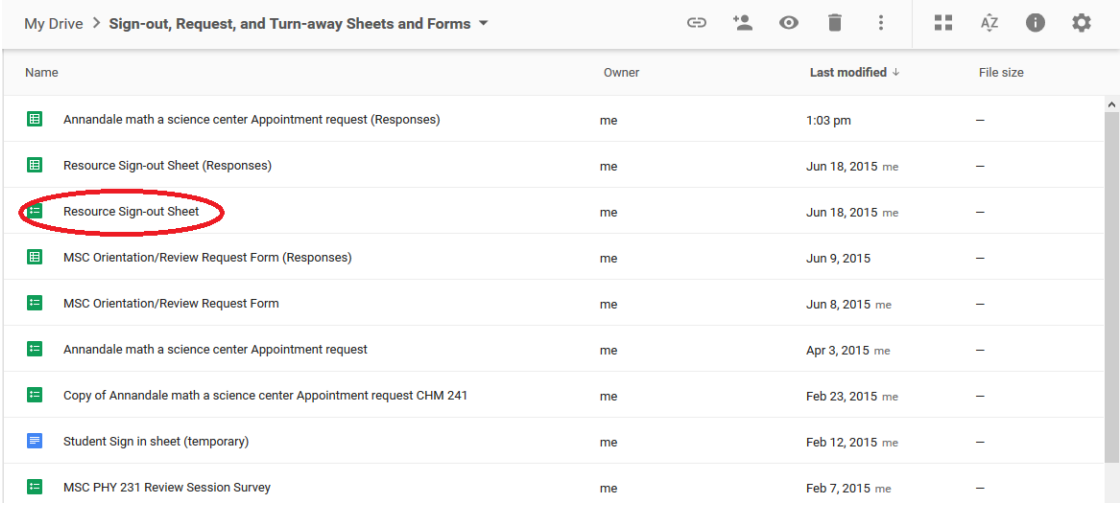


Figure 41. Sign-out, Request, and Turn-away Sheets and Forms directory

If the link shows up like below. Click on *View Live Form* (Figure 42 – 43) to start filling information.

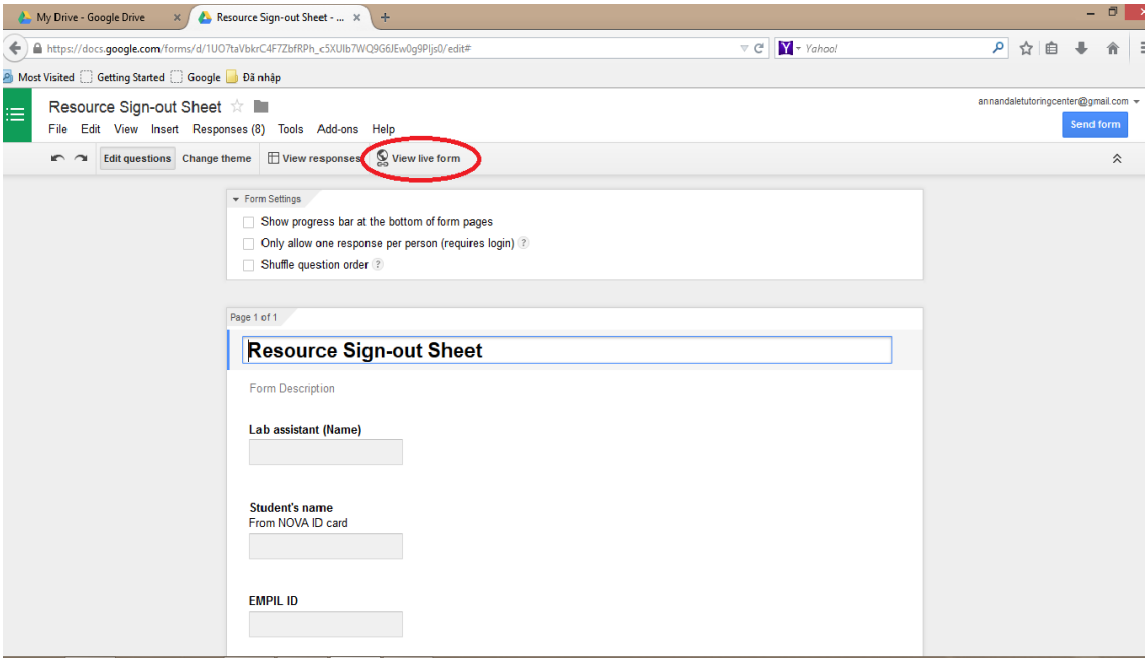


Figure 42. Resource Sign-out Sheet non-live form.

Note: Sign-out sheet MUST be filled in *Live Form* mode. Do NOT fill in the information in *Edit* mode because it will affect the *Responses* sheet.

After getting into the form like below, fill in the information (except for *Return Date* and *Item Returned* sections) the click **Submit.**

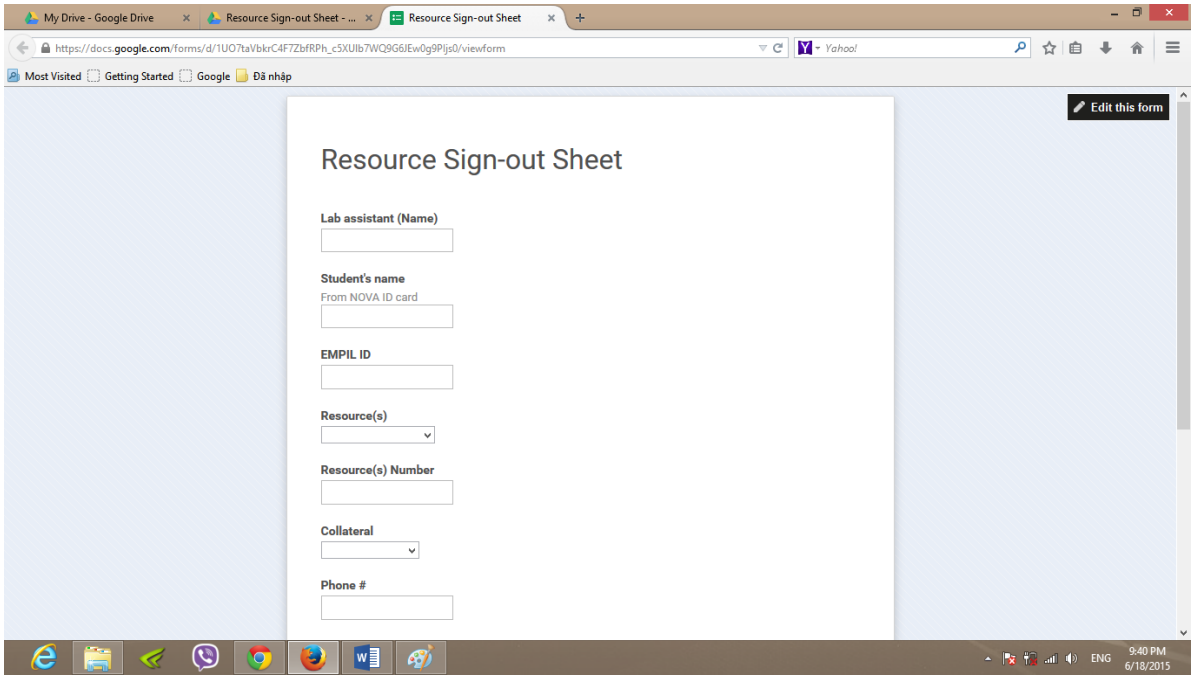


Figure 43. Resource Sign-out Sheet live form.

To fill in another student's information, click on **Submit another response.** The following page only shows up if there is any information submitted previously (Figure 44).

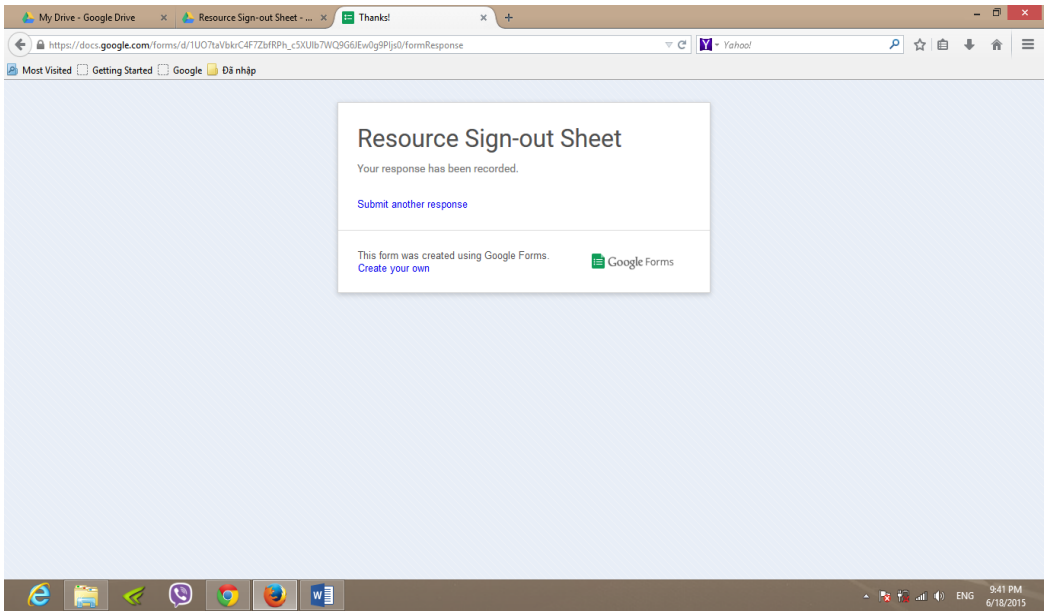


Figure 44. Post-submission of a resource.

<u>How to fill in the information by columns:</u>

- Lab Assistant: fill in YOUR name/initials.
- Name: fill in the student's name (based on his/her ID).
- EMPL ID: fill in his/her NOVA ID.

- Resource(s): choose the name(s) of the resource(s) he/she borrows from the scroll list, for example, TI-83 (calculator), MTH 173 (calculus textbook), etc.
- Resource Number: Item numbers behind the back of the calculators (for example: TI84-3) or on the spines of the textbooks (for example "1 of 4").
- Collateral: type of the ID the student hands you i.e. NOVA ID or Driver's license.
- Phone #: fill in student's cell phone number.

The lab assistant who receives back the item(s) from a student MUST go to *Resource Sign-out Sheet (Responses)* in the MSC's Google Drive to fill in the *Return Date* and *Item Returned* columns (Figure 45).

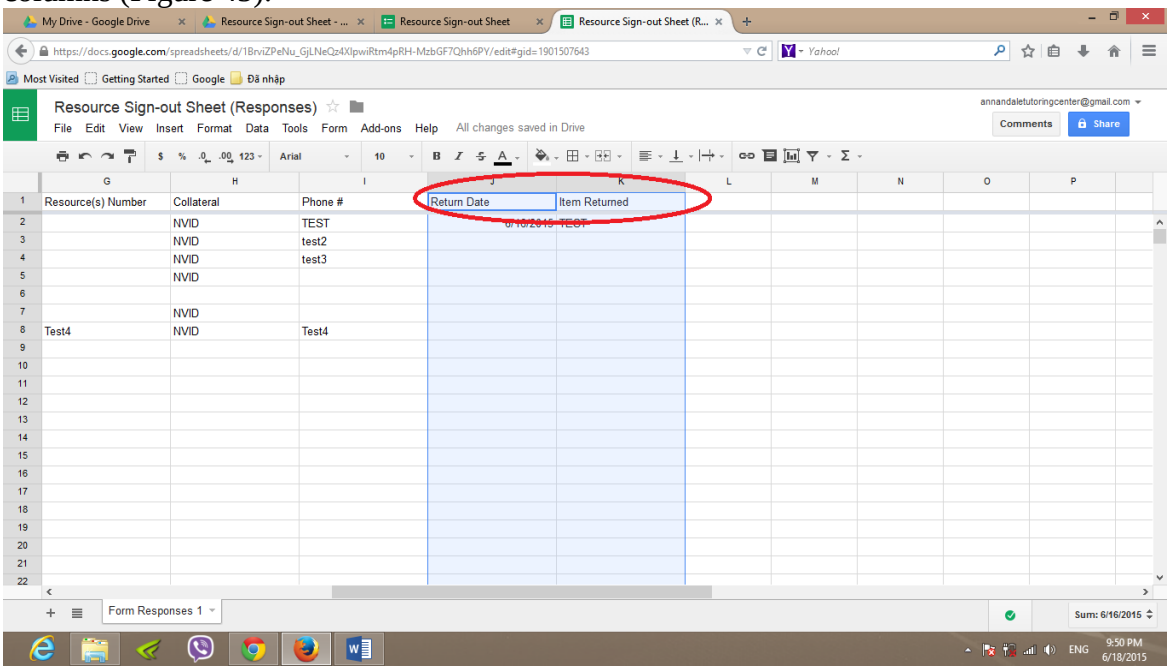


Figure 45. Sample resource Sign-out Sheet (Responses) table.

How to fill:

- Return Date: the day the student returns the item(s).
- Item Returned: Initials/Name of the lab assistant who checks out the item(s).

Note that:

- Textbooks and headphones CANNOT be brought OUTSIDE of the center by students.
- Be careful when checking out the item(s). Double check the information before filling in the *Return Date* and *Item Returned* columns.
- Calculators CAN be borrowed outside for 2 days. Whoever borrows such resources MUST leave their IDs and phone numbers at the center until they return the items.
- Students MUST submit either their NOVA cards or drivers' licenses in order to borrow items. Those cards will be kept in the drawer next to lab assistant desk until the items are returned.
- The lab assistant is required to record phone numbers of the students who borrow items outside the center for future contact.
- Lab Assistants: Be *responsible* and *aware*!

During your shadow experience, use the Resource Sign-out Sheet to loan one of the centers Resources to a student. Which resources can be borrowed outside the center? When a resource is taken and borrowed outside the center, what additional piece of information is need?

Frequently asked questions

1. Can you help with placement test?
   L.A: It is the policy that we are not permitted to assist students with placement test preparation since it could cause students to be placed in courses that are inappropriate for their level of knowledge.

2. Can we make more than one appointment per week?
   L.A: If you are interested in making more than one appointment on different subjects, then yes you can. On the other hand, you cannot have more than one appointment per week on the same subject.

3. If I am documented as a no-show at one appointment, can I still make another appointment?
   L.A: If you are documented as a no-show twice, you may not schedule any additional appointments during the 16-week semester. You may still attend walk-in tutoring. If you can prove that your appointment was a no-show because of the fault of the MSC (tutor canceled the appointment without advance notice, center closed due to inclement weather), then you will not be considered a no-show.

4. Can I borrow a book to take to my class?
   L.A: You are not allowed to borrow books, ipads, laptops, or headphones outside the center. However, you are able to borrow calculators outside for 2 days. If you borrow a calculator from Thursday through Saturday, you must return it on Monday

5. Are you offering private tutoring?
   L.A: No we do not. But we do have a list of former and current tutors who offer private tutoring. This service is not affiliated with NOVA.

6. I'm not satisfied with your service, how can I comment on that?
   L.A: You are welcome to complete a complaint form or talk with our lead tutors/supervisor.

7. I wrote my name on the board and the tutors went to somebody else, what can I do?
   L.A: We are always trying to offer the best service. If you wrote your name on the board and the tutor went to somebody whose name was listed after you, it might mean that the tutor cannot help with your subject.

8. How can I log in to the center's computers?

L.A: You can log in to Directory by your MyNova account.

9. How can I check the center's schedule?
   L.A: The Center's schedule is stapled on the front door.

Which of the questions above did you answer during your shadow experience? How many times?

Part II Conclusion

Dear lab assistant,

Thank you for being a part of the MSC Team and welcome to the family. Your job is always indispensable to the MSC and is never going to be easy. Whereas the tutors' job is to deal with students' academic problems, which they have expertise in, your job is to communicate and assist students and you may start with limited interpersonal experience. Aside from plain illustrations of how to use Accudemia, the board, MSC email, resources, etc., there are always going to be surprises and unexpected situations that this book's communicative tutorials cannot thoroughly cover. Why? Because life has an infinite number of situations. Therefore, we are afraid to say that as a lab assistant, you WILL meet with a lot of unpredictable questions and situations. You WILL make mistakes and be unable to communicate with students once in a while. So, whether you can figure out the situations or not, make them your own experience.

Remember to keep calm and put out a sincere smile from your heart every day. It may not only improve your mood, but also brighten someone's rainy day. We truly believe that with patience, wisdom, responsibility, and a heart of gold, you will be able to carry out your role as a sympathetic communicator, a bridge between students and tutors, and a "house keeper" who makes the MSC work.

We hope you can find joy from listening to others.

References

Arco-Tirado, J. L., Fernández-Martín, F. D., & Fernández-Balboa, J. M. (2011). The impact of a peer-tutoring program on quality standards in higher education.*Higher Education*, *62*(6), 773-788.Beasley, C. J. (1997). Learning Through Teaching. Proceedings of the 6th Annual Teaching Learning Forum, Murdoch University, February 1997. Perth: Murdoch University. http://lsn.curtin.edu.au/tlf/tlf1997/contents.html

Chi, M. H., Siler, S. A., Jeong, H., Yamauchi, T., & Hausmann, R. G. (2001). Learning from human tutoring. Cognitive Science, 25(4), 471.

Chi, M. T. (1996). Constructing self-explanations and scaffolded explanations in tutoring. *Applied Cognitive Psychology*, *10*(7), 33-49.

Chin, T., Rabow, J., Estrada, J., & Rabow, J. (2011). *Tutoring matters: Everything you always wanted to know about how to tutor*. Philadelphia: Temple UniversityPress.

Cleveland, J. P. (2008, December 19). What Socrates Would Say to Undergraduate Tutors. Chronicle of Higher Education. p. A26.

Cole, B., & Dale Carnegie & Associates. (2011). *How to win friends and influence people in the digital age*. New York: Simon & Schuster.

Coelho, P. (1993). *The alchemist*. San Francisco: Harper San Francisco.

Coelho, P. (2003). *Warrior of the light: A manual*. New York: Harper Collins Publishers.

Ellis, John. (2014, January 10). Tips for tutors: 12 teaching strategies for effective learning. Retrieved May 26, 2015, from http://blog.tutorhub.com/2014/01/10/tips-for-tutors-12-teaching-strategies-for-effective-learning/

Fantuzzo, J. W., Dimeff, L. A., & Fox, S. L. (1989). Reciprocal peer tutoring: A multimodal assessment of effectiveness with college students. *Teaching of Psychology*, *16*(3), 133-135.

Graesser, A. C., Person, N. K., & Magliano, J. P. (1995). Collaborative dialogue patterns in naturalistic one-to-one tutoring. *Applied cognitive psychology*, *9*(6), 495-522.Mynard, J., & Almarzouqi, I. (2006). Investigating peer tutoring. *Elt Journal*,*60*(1), 13-22.

McArthur, D., Stasz, C., & Zmuidzinas, M. (1990). Tutoring techniques in algebra. *Cognition and Instruction*, *7*(3), 197-244.

Teaching and tutoring - A look at the differences. (2012, March 27). Retrieved May 22, 2015, from https://www.firsttutors.com/uk/blog/2012/03/teaching-and-tutoring-a-look-at-the-differences/

Topping, K. J. (1996). The effectiveness of peer tutoring in further and higher education: A typology and review of the literature. *Higher education*, *32*(3), 321-345.

Tutoring definition, tutoring vs. teaching, tutoring guidelines. (2012, August 4). Retrieved May 22, 2015 from http://www.slideshare.net/mverscha/tutoring-vs-teaching

Appendix

Walk-in Tutoring Session

Thi: How can we help you today?

Student: It's just…this equation…I don't know because the way we did it in the notes is a bit complicated. I'm trying to copy the notes but…it says here to eliminate x I guess, solve for y and z but…uhh…yeah I don't know so…

Thi: Can I see your notes?

Student: Sure, this is for this question…question four, okay. Yeah I think there are steps to this: there's step 1, there's step 2 and there's step 3.

Thi: Okay. Umm…so, you have three equations and you have three unknowns.

Student: Yeah, so I need to get to know x y and z

Thi: What do you think that you have to do after reviewing your notes?

Student: Because I've done it, there are two different ways I've done it before. Before I've done this and this and trying to find you know…multiply this by two to find common z and then…I don't, there's two different ways and I'm trying to find the best option.

Thi: Okay, do you want to write your problem in here and we'll start in this page here…okay, do you want to read the first step of your notes?

Student: Yeah, the first step is…umm…prepare eliminates are variables yeah. So, we multiply -2 times this first equation I think it is to maybe…to…to yeah…to get this same as this, right?

Thi: So, the first step is, in your notes it said, the first step is to pick one pair of equations to pick two equations so that –

Student: Yeah, so for this one you take this, right? x+y-z. We want it to be, I think, same as this so that we could solve for z right or solve for…like I think what he did here is he did -2 because this is –z and this is +2z so for this, you want z to be common, to beat like each other yeah

Thi: So that you can umm…when you…do the operation add for this equation and this equation, you can eliminate one unknown.

Student: Yeah, one unknown, yeah. So we're gonna try to get the z as common. That's what she did here right?

Thi: Yes. So now let's try not to look at this. Let's umm…the first step is you pick two equations, you do whatever operation to eliminate one variable

Student: Yes, so for example, so here it is going to be -2x+…

Thi: So what equation that you pick in the first step? This is the first-

Student: Yeah, and I picked the first two equations, and after that I will…I will y'know bend it to a third equation. So I'm picking these first two equations. So -2x-2y…umm

Thi: So you said that you choose the first equation. What do you do with the first equation?

Student: I'm trying to get it as common. I'm trying to get the z common with each set common. Like I'm trying to get this one same as this.

Thi: Okay, so now the first equation is…?

Student: x+y-z = -1. So for me to get it common to this, I need to multiply this equation by -2.

Thi: Okay, okay, so lets do that.

Student: -2x-2y-z…uhh…+2z = 2. And then you have 4x-3y+2z=16. We add this and this so… -2+4 is going to be 2. 2x + (-2-(-3))…[long pause]…right?

Thi: Okay, right here though…

Student: Oh yeah, this is…yeah something is…I don't know

Thi: Okay, so what is your equation? Let's look at your equations. The first equation is…

Student: x +y-z = -1.

Thi: And the second equation is…

Student: +4x-3y+2z = 16. So I guess I need to multiply this only by 2, not by -2.

Thi: Yes, why?

Student: I think this confused me I guess. Because –2z can take away 2z, but 2z cannot take away 2z becauase it's gonna be 4z

Thi: Yes, exactly! When you add them.

Student: So I'm gonna…okay so…[solving] 2x + 2y -2z = -2. 4x-3y –

Thi: So instead of multiplying -2 to both sides of this equation, you multiply 2.

Student: Okay, so 4x-3y + 2z = 16. So 4x + 2x is 6x. then it's –y, right? Plus…no that's it. Equals 16 so -2 + 16 would be 14.

Thi: Yes.

Student: So this is our first equation.

Thi: So, what did you do on this first step? You took two equations. You do the operation you need to so that you can eliminate one variable.

Student: Yeah, one variable. So we eliminated z now. So then we do these two equations for x and then…

Thi: What do you think? Now we have one equation with two unknowns, x and y. Umm…how can we solve for x and y. What else do we need? We have two unknowns, x and y…can we come up with another equation with x and y so that we can solve for them?

Student: Yeah, because we still have this one, we haven't used him…

Thi: Yeah!

Student: Which equation do we use it with? Do we use the second one?

Thi: Umm… so you have this one and…yeah, just try it. What do you think?

Student: Umm…because I don't know whether to find the common between this and this, and this and this.

Thi: It depends. 4x-3y + 2z = 16. This is 2x-2y-3z = 15. How can we eliminate z? You can pick these two equations.

Student: To eliminate, we need to find the common between the zs. So we need to multiply both. So we need to…I don't know. We could multiply this by 3 and this by 2. Yeah?

Thi: Yeah.

Student: So 4x-3y + 2z = 16 and 2x-2y-3z = 15. So we multiply this by 3 and multiply this by 2. So 12x-9y+6z = …

Thi: Let's use a calculator to find that. Do you have a calculator?

Student: Yeah, let's see…48. And this is 4x-4y-6z = 30. Then we have to…? So 12x+4x is…

Thi: So what do you do with these two equations?

Student: We add them. So it is 16x -13y = 78. So these are the two equations we have right now. 6x-y = 14 and 16x-13y = 78. So what we do here is…do we add them together?

Thi: So now to solve x and y, you have two equations.

Student: So do we add them together?

Thi: Look at this first equation. Can we use substitution? Have you done this before?

Student: This equation. Like you want it in the form y = 4x…?

Thi: Substitution means you make y equal something in term of x and then we can…

Student: Ok, so 6x-y=14, and –y=14-6x so it's gonna be y = -14+6x.

Thi: That's very good. Now from this equation, you come up with y = -14 + 6x. How can you solve for y? We still have this one. How can we use this to solve for x and y? …We have this and we know that y = -14+6x

Student: Should I do the same to the other one?

Thi: Should we? This is we have 16x-13y=78. We know that y is equal to this in terms of x. Can we substitute this in this equation so that we have one equation with x only? What do you think?

Student: Ok. So I substitute this whole equation here?

Thi: What is our target? What do you need to solve? …Now look right here, we need to solve for…

Student: y

Thi: and?

Student: x

Thi: And we know y is?

Student: -14+6x

Thi: Yes. We have two equations. We use only this one. We haven't used this one yet.

Student: So do we plug this here? Or do I solve for this?

Thi: What do you think? For this one, from this equation we come up with this.

Student: Yeah, I get that.

Thi: Now, how can we use this and this to solve for x and y?

Student: We plug this here to solve…okay.

Thi: [to Student] You finish that, I will come back to you later [moves to other student]