Last summer scored another successful MSC summer program. Students from Campbell, Grainger, Loudon, Jefferson, Union Counties, and Pigeon Forge participated in the annual six-week adventure. For many, this was their first time away from home. For others, summers at the University of Tennessee’s Knoxville campus were all too familiar.

Mixed emotions filled the room on opening day. Returning students were eager to assist newcomers and to serve as role models. Though some new students were excited to be taking part in this adventure, many others were nervous, shy, and unaware of what to expect.

From day one, students were able to experience college life. Walking all over campus in the hot East Tennessee sun is nothing new for experienced UT students, but MSC students had to adjust. Many had roommates whom they did not know, or at least had never lived with before. Adjusting to the small dormitory rooms, shared suite showers, new living companions, resident assistants, and the freedom of living away from home were just some of the many social challenges that the students faced while attending the program.

In the classroom, MSC students joined students from both PCUB and AEUB. By combining the three UT Upward Bound programs, students had many more course options from which to choose. They took classes in subjects like American Sign Language, Pharmacology, and Multiculturalism, many of which they would not find at their schools.

Although programs were combined in subject courses, MSC students were the only ones to participate in the Mentoring Project classes that were three hours long and three days a week. The end product was a scientific research poster, paper, and oral presentation.

According to TRIO Director, Dr. Ernest W. Brewer, the work exhibited by the students paralleled that of graduate students, and he should know. In addition to his role as the Director of five TRIO programs, Dr. Brewer is a UT professor who works closely with Ph.D. students in the Department of Educational Leadership and Policy Studies.

Whether eating in Rocky Top or climbing “The Hill” for 8:00 a.m. classes, MSC students fully embraced college living. They experienced what the completion of a truly scientific research project might entail, and they learned that classes can be exciting, though challenging. They were also able to develop close friendships in a short amount of time.

While weekdays were filled with academics, athletics, social and cultural activities, students were able to participate in off-campus trips. They also met challenges at the Maryville College Mountain Challenge Alpine Tower and Ropes course, and gave back to their community through their selected service projects. Once the residential portion concluded, MSC students travelled to Chattanooga, TN and Atlanta, GA. They explored the TN Aquarium, Emory University, CNN Studios, Stone Mountain, and Six Flags!

Complaints of little sleep were heard here and there, much like college, but students realized that everything was worth it in the end. Most, if not all, would never have traded their experiences with MSC for any other summer event. They were able to study hard and play hard, all the while learning the value of true friendship.
MONEY MATTERS

You think you are too young to have a financial plan, right? That is for after you graduate from college and start making the big bucks, right? Wrong! The decisions you make today can have a profound affect on your financial future. Unfortunately, many college students graduate not only with a degree, but also with a substantial amount of debt and a poor credit score. You don’t have to be one of them. Developing and sticking to a budget now can help you to make better financial decisions in the near and distant futures.

Step 1: Decide on a time frame for tracking your income and expenses. Will it be weekly or monthly?

Step 2: Make a list of all the money you have coming in. It is helpful to break it down into categories—such as work, allowance, and “other” for gifts of money or money you make from selling your stuff. The total of all the categories is your income.

Step 3: Make categories for all the money you have going out. Do not forget to include money you put in savings (10-20% of your total income is a good starting point). If you divide your expense categories into fixed and variable, it will be easier to see which ones you can adjust, if necessary. Remember, you should have a category for everything you regularly spend money on. The total of all the categories makes up your expenses.

Step 4: Subtract your total expenses from your total income. If the number is negative, you need to adjust some of your variable expenses until the number is a zero. If it is a positive number, you may want to think about adding some more to your savings line so you can reach your long-term financial goals faster!

Step 5: Take a look at your budget and financial plan. Do you need to tweak it to bring your spending plan more in line with your financial goals?

Once you have created your budget, all you have to do is stick to it. Keep yourself on track by getting organized. Buy some filing folders or an accordion file to sort your important financial documents. Remember, a budget can help you to make the most of your money. Stick with it, and you should be able to achieve your financial goals.

Source: http://hsfpp.nef.org/loadFile.cfm?contentid=196

Positive Self-Concept
Know Your Strengths and Weaknesses . . .

When you look in a mirror, what do you see? What sorts of words would you use to describe yourself? Are they positive, negative, or a combination of both? The view that we have of ourselves is called our self-concept. This view may be negative or positive and is learned through interacting with other people and the environment around us. Self-concept includes not only how we view our physical body, but also how we view our ability to: accept and respect ourselves and others, solve problems, and make a difference in the world around us.

Working toward achieving a good self-concept begins by learning to accept yourself as you are today. Become aware of your strengths and weaknesses and make an effort to capitalize on your assets. Concentrating on the ways your talents can help you experience success also fosters a better view of yourself. As your self-concept improves, you will have the resources to begin working on overcoming your greatest weaknesses.

The other essential ingredient in being able to move toward a positive self-concept is believing in yourself. If you do not believe in yourself, others sense this and will act accordingly. This clearly helps keep a bad self-concept firmly in place. On the other hand, if you do believe in yourself and project a good self-concept, others will look at you as someone who is self-confident and deserves respect. So, in attaining a good self-concept, you reach the point of being able to look beyond yourself and assist others.

Thus, the payoff of having a positive self-image is great, both for you and the people around you!

Dr. Ernest W. Brewer
Professor and PI/ Director of TRIO Programs
Staying Connected!

The Math and Science Center is not just a summer experience. Students participate throughout the program year through bi-weekly check-ins at school and monthly Saturday sessions on UT Campus. Saturday sessions provide opportunities that students may not have during the school year. Some activities are campus tours, community service, ACT Prep, science and math activities, and more.

During MSC Saturday sessions, students are introduced to various STEM fields through experiential learning, which opens their minds and futures to endless possibilities. Professionals lead students in various activities such as geo-caching, building model rockets, investigating simulated crime scenes, programming robots, certification in the American Heart Association Provider Course, and much more! By volunteering, students give back to the community through activities with the Second Harvest Food Bank, LJamz Nature Center, River Rescue, Girls and Boys Clubs, and the Knoxville Zoo.

Some Do’s and Don’ts...

Test-Taking Tips from the Professor

Tests are in the same category as Monday mornings and root canals, but like other unpleasant events, they can be managed. If you’re well-prepared, you can turn a potentially unpleasant event into a good experience.

Tests are a part of academic life, so resolve to get the best of them. Begin to prepare for tests on the very first day of class by careful note-taking and studying. Schedule test preparation time well in advance and avoid last minute cramming!

Here are some strategies education experts suggest to increase your test-taking effectiveness:

**Before the Test**
- Try to predict test questions as you take notes.
- Review all notes taken in class and those developed when reading texts.
- Recite aloud any facts that you need to learn.
- Avoid rereading text books before a test.
- Consider studying with a partner or in a small group.
- Get a good night’s sleep.
- Concentrate on important information that you have highlighted or summarized.

**During the Test**
- Be sure you understand all the directions.
- Pace yourself. Don’t spend a lot of time on a few questions. Answer questions you know first then go back to those you are less sure of—but be sure to answer all questions.
- Write legibly and/or be sure your answers are recorded in the right place.
- Stay calm and avoid changing answers. Your first choice is most often correct.
- Finally, don’t second guess your performance. The actual results may be very different from your expectations.

By using these tips you’ll be well on your way to success in testing. If you feel you need outside help to improve your test taking skills, ask your teacher or advisor for an appropriate referral.

Dr. Ernest W. Brewer
Professor and PI/Director of TRIO Programs
Funding Your College Education

Stage 1
1. Review your career plans and decide which type of school is best for you.
2. Narrow your school choices down to three. Visit each school’s website for valuable academic and admissions information and to request a school catalog.
3. Meet with your school counselor to make sure you are on track to graduate and fulfill college admission requirements.
4. Obtain registration materials and test dates for the ACT and/or SAT.
5. Meet with school admissions’ representatives who visit your high school.
6. Ask teachers, guidance counselors, and employers for letters of recommendation to include with your college applications.
7. Attend college fairs and financial aid workshops.
8.Compose admissions essays.

Stage 2
1. To prepare to apply for federal student aid, be sure to get a PIN at www.pin.ed.gov so that you can complete your application and access your information online. Your parent/guardian also needs a PIN.
2. As soon as possible, complete and submit your Free Application for Federal Student Aid (FAFSA), along with any other financial aid applications your school(s) of choice may require. You can complete the FAFSA online at www.fafsa.ed.gov or on paper, though the online application is faster and easier.
3. Parents: File your tax forms as early as possible. If you have not completed your tax forms, you can provide estimated information on your federal student aid application. But remember to make any necessary changes later.
4. Take ACT and/or SAT exams, if you have not done so.

Stage 3
1. Begin completing your admissions applications. Double check the deadlines for submission.
2. Research taking Advanced Placement (AP) or College Level Examination Program (CLEP) exams.
3. Visit your top school choices. Meet with faculty, staff, and students.
4. Research and apply for other funding and scholarships.
5. Finalize your admissions applications (most can be done online). Be sure to keep copies of your applications.

Stage 4
1. Look for your Student Aid Report (SAR) in the mail. This form contains your financial aid information. Quickly make any necessary corrections and submit them to the FAFSA processor.
2. If you have not received your SAR four weeks after submitting the FAFSA, immediately contact the Federal Student Aid Information Center at 1-800-4-FED-AID (1-800-433-3243).
3. Complete any last scholarship applications.

Stage 5
1. Watch the mail for school acceptance and financial aid award letters. Compare the colleges’ financial aid packages.
2. Contact a school’s financial aid office if you have questions about the aid that school has offered you. Getting to know your financial aid staff early is always a good idea—they can tell you about deadlines, other aid for which you might wish to apply, and important paperwork that you might need to submit.
3. Make your final school decision and mail any deposits required.
4. Accept financial aid.
5. Inform the schools where you will not be attending of your decision.
6. Watch for other important school deadlines.
7. Finalize any summer job plans.
8. Prepare a realistic student budget.

Stage 6
1. Plan for college orientation, transportation, and housing.
2. Follow up with the financial aid office at your school to be certain that all your paperwork is complete.
3. Finalize plans for school.
ACT Prep! Are You Ready?

1. You are penalized for guessing answers on the ACT.
   - Right
   - Wrong

2. It is acceptable to write in the ACT booklet for the science and math portions of the test.
   - Right
   - Wrong

3. The structure of the ACT changes from time-to-time.
   - Right
   - Wrong

4. If you are not able to complete a particular section of the test, it is acceptable to return to that section later to complete what you missed.
   - Right
   - Wrong

5. You will do better on the math portion of the test if you wait until you've completed a Calculus class.
   - Right
   - Wrong

Answers: L: W, 2; R: 3; V: 4; W, 5; SW

Source: www.msnbc.com, 1/10/2005

Scholarship Opportunities

As you begin thinking about funding for college, don't forget about the Dell and Gates Millennium Scholarship Programs. Each of these scholarships provides major awards that can help you fund your education. Though competitive, numerous MSC students have received these awards in the past. Don't let these lucrative opportunities go unnoticed!

Dell Scholars

Each year, Dell awards 250 scholarships across the nation to students who participate in a college readiness program—Upward Bound is one of the qualifying programs. Past MSC winners include Amari Ben Levi (2008), Helen Ren (2008), Marc Knight (2007), and Mindy Ren (2007). The need-based scholarship program emphasizes the philosophy that a student's drive and determination to succeed are as important, if not more so, than test scores and academic records.

Students who are interested in applying for the scholarship may do so beginning November 1. The application deadline is January 15. In addition to a $20,000 scholarship over four years, the Dell Scholars program provides wrap-around services and technology resources, including a new computer, printer, and software.

Eligibility Criteria Include:

- Graduating from an accredited high school this academic year
- Earning a minimum of a 2.4 GPA
- Need for financial assistance
- Participating in a MSDF approved college readiness program for a minimum of two years (MSC qualifies)
- Planning to enter a bachelor's degree program at an accredited higher education institution in the fall directly after your graduation from high school.
- U.S. citizenship or permanent residency

Applicants will be evaluated based upon the following:

- Individual determination to succeed
- Future goals and plans to achieve them
- Ability to communicate the hardships you have overcome or currently face
- Self motivation in completing challenging coursework
- Demonstrated need for financial assistance

Dell will announce the semi-finalists on February 1, and semi-finalist materials will be due by March 10. The final winners will be announced April 10. For more information and to apply, visit the Dell Scholars website at www.dellscholars.org.

Gates Millennium Scholars

The Gates Millennium Scholars (GMS) Program provides annual scholarships to outstanding African American, American Indian/Alaska Natives, Asian Pacific Islander Americans, and Hispanic American students who wish to complete an undergraduate college education. Nicole Osorio, a former MSC student, received this scholarship in 2008. The goal of GMS is to promote academic excellence and to provide an opportunity for minority students with significant financial need to reach their fullest potentials.

Awards are based on the cost of tuition, fees, books and living expenses for the particular academic year and cont'd on p. 6
Forty (40) students presented a fifteen (15) team poster projects at the Annual MSC Poster Symposium. Projects ranged from Earth and Planetary Science to Pharmacy, providing a large variety of research topics. Each mentor group was expected to develop a scientific poster, an oral presentation, and a written paper. Each section was judged by outside panels, and groups received a combined total score. These projects were successful thanks to the valuable assistance of the scientific mentors.

This year’s symposium welcomed several new mentors, three of whom specialized in various health-related fields. Anthony Brown in Health and Science mentored students with a unique look into the dietary lifestyles of college students, while David Laughlin assisted students in the field of Sports Science. Pharmacy specialist, Macon Carroll, mentored four students in breathing quality and asthma treatment, culminating in a 2nd place overall finish for the Pharmacy group.

University biology and chemistry departments provided several mentors to the program this year. Dr. Elena Shpak and her laboratory assistant, Rebecca Wilson, opened their cellular and molecular biology lab to MSC students. In chemistry, Dr. Ziling Xue and Adam Lamb, a member of Dr. Xue’s research team, provided hands-on chemistry experience.

Students interested in animal research had several options this year at the Knoxville Zoo. David Backus and Jill Berry mentored three separate projects. Nocturnal mammals were the focus of one project, while another one looked at the semi-aquatic nature of North American river otters. The third project’s members observed the mobility of the giraffa camelopardalis, which resulted in a 1st place prize.

Two highly sought after projects were in the fields of forensics and criminology. Directed by Dr. Natalie Shirley, students analyzed a crime scene using equipment loaned by the UT Forensic Anthropology Department. Dr. Shirley’s group took 3rd place at the poster symposium. Heather Powell mentored students to develop profiles of both child abuse victims and their offenders.

Tom Webber, former Director of Heritage High School’s Planetarium, supervised students in the calculation of the age of the universe using Hubble’s Law, while graduate student Driss Takir and his studentss concentrated their efforts on the asteroid 4 Vesta.

This year, three projects focused on engineering. One group, led by aerospace engineering graduate student, Franklin Curtis, conducted an experiment in the aerodynamics of wind tunnels. Graduate student, Zhe Chen, provided hands-on research experience in the electrical engineering field. Students in this group attempted to solve electrical circuit problems using Matrix Laboratory. Under the supervision of Dr. Yanlei Gao and his research assistant, Stephen Whitson, the

1st place winners
Taryn King and Kristin Latham “Study of Captive Giraffa Camelopardalis”

2nd Place winners (L to R) Tiffany Allen, Ryan Gardner, Rebekah Jones (not pictured), and Stephanie Thompson with Professor/Dept. Head, Dr. Vincent Anfara; Dr. Ernest W. Brewer, Professor/PI; and Dr. Robert Rider, Dean of College of Education, Health, and Human Science “How Is the Air You Breathe? Environmental Factors That May Affect Breathing Quality and Medications Used to Treat Asthma”
Material Science and Engineering group conducted research on the adhesion of microstructures to surfaces. After hours of hard work, students presented their research at the Annual Scientific Poster Symposium. Many dedicated mentors came to support their students in their endeavors. Under the direction of David Backus and Jill Berry, students Taryn King and Kristin Latham took first place for their project entitled, “Study of Captive Giraffa Camelopardalis.” With Macon Carroll as mentor, second place was awarded to Tiffany Allen, Ryan Gardner, Rebekah Jones, and Stephanie Thompson for their project “How Is the Air You Breathe? Environmental Factors That May Affect Breathing Quality and Medications Used to Treat Asthma.” Third place went to Dr. Natalie Shirley’s mentor group, including Zach Ballard, Raven DeVault, Amanda Looney, and Brittany McCarthy for “Untangling a Mystery: A Forensic Anthropology Case Analysis.”

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<th>Initial Debt When You Enter Repayment</th>
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<th>Extended</th>
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* Payments are calculated using the fixed interest rate of 6.8 percent for student borrowers. ** This is an estimated monthly repayment amount for the first two years of the term and total loan payment. The monthly repayment amount will generally increase every two years, based on this plan.

**Source:** www.studentaid.ed.gov

Scholarship Opportunities (cont'd from p. 4)

- African American, American Indian/Alaska Native, Asian Pacific Islander, American or Hispanic American student
- Citizenship or permanent residency
- A cumulative high school GPA of 3.3 on a 4.0 scale or have earned a GED
- Enrolling for the first time at a U.S. located, accredited college or university in the fall of 2011 as a full-time, degree-seeking, first-year student (with the exception of students pursuing a high school diploma while concurrently enrolled). First-time college enrollees can also be GED recipients
- Demonstrating leadership abilities through participation in community service, extracurricular or other activities
- Meeting the Federal Pell Grant eligibility criteria
- Having completed and submitted all required forms

Students who are interested in applying for the scholarship must do so by the deadline of January 10. The application requires a nominator and recommenders, so students are encouraged to make these decisions carefully and early. For more information and to apply, visit the GMS website at http://www.gmsp.org.
Managing Your Time

We all have the same amount of time. So, why do some people seem able to accomplish so much? They usually follow a system of time management.

Do you know where your time goes? In order to manage time, you need to know what you usually do. One way to accomplish this is to keep a time log. Briefly jotting down what you are doing every 15-30 minutes for a week will give you important information. Once you have this, ask yourself:

- Did I get everything done?
- Was I rushed for time?
- Did I meet deadlines?
- Did I accomplish with reaching my goals?
- Did I accomplish more at a certain time of day?
- At what time of the day did I accomplish the least?

Now, you’re ready to use the information from your time log. Make a list of the activities you have to do. Mark those that are scheduled at definite times and those that can be arranged according to your own time. Then, prioritize the list:

1. the most crucial activities
2. activities that can wait until after those in Group I
3. the least crucial activities

Prepare a schedule using the prioritized list. Use your list and schedule every day. When you develop the schedule, remember to plan for your peak times and low energy times.

Some important tips for stretching your time include: using waiting time effectively, being sure of instructions, avoiding perfectionism, doing the difficult tasks first and avoiding overcommitment.

Effective time management frees you to do your best and to succeed. Remember, the schedule isn’t your master because you control it. It’s well worth the time to plan your time.

Dr. Ernest W. Brewer
Professor and PI/Director of TRIO Programs

MSC Program Description

Since its inception in 1990, The University of Tennessee’s Math and Science Center (MSC) has served over 910 high school students interested in the fields of math and science. Students from across East Tennessee participate in the MSC summer program each year. Participants experience true college life by living in University of Tennessee dormitories and eating in the on-campus dining facilities. Through rigorous academic classes and research activities, students experience hands-on learning at its best.

During the academic year, students meet with MSC counselors at their schools on a bi-weekly basis and participate in monthly Saturday session activities that focus on college admissions, financial aid, career and educational counseling, and science and mathematics. Through the summer and academic components, the Math and Science Center strives to increase the number of students entering into math and science college majors and career fields.