

## Basic Science Symposia and In-services



STARS offers Symposia and In-service Sessions each month, either on Monday evenings or Saturdays. Symposia feature scientists and physician-scientists discussing the very latest advances in biomedical research areas such as:

- Mental Disorders/Neurological Diseases
- Stem Cells
- Pathogens/Microbes
- Much more...

Basic research topics are covered in areas such as:

- Cell biology of diseases such as obesity and Alzheimer's
- Protein structure and function
- Much more...



Our In-service Sessions give teachers the opportunity to learn lab techniques and principles, which they can use in the classroom. Reagents and equipment are often available for classroom use.

Teachers receive professional development hours. Pre-registration is required for these events at: [www.utsouthwestern.edu/STARS/register](http://www.utsouthwestern.edu/STARS/register)

## Exploring Post



Students gain insight and practical knowledge of careers in biomedicine, while engaging in activities that emphasize life skills, citizenship, character education, and leadership.

Exploring is a career education program initiated by the Boy Scouts of America for young men and women who are 14-20 years old. It is designed to help teenagers make educated decisions about their future by allowing them to gain practical experience in different career fields.



The Exploring group is organized by UT Southwestern volunteers and Exploring Post student-elected officers. Meetings are tentatively scheduled for the last Monday of each month (date adjusted for holidays) in Room D1.200 from 6 pm-7:30 pm. There is a \$10 application fee for the year to cover insurance.

## Poste de Exploración



Los estudiantes adquieren información y conocimientos prácticos de las carreras de biomedicina, al participar en actividades que hacen hincapié en habilidades para la vida, ciudadanía, educación del carácter y liderazgo.

Explorar es un programa de educación profesional iniciado por los Boy Scouts of America de jóvenes hombres y mujeres que son 14-20 años de edad. Está diseñado para ayudar a los adolescentes a tomar decisiones educadas acerca de su futuro por lo que les permite adquirir experiencia práctica en campos profesionales diferentes.



El grupo de explorar es organizado por un grupo de voluntarios UT Southwestern y estudiantes elegidos oficiales. Reuniones son tentativamente programados para el último lunes de cada mes (fecha ajustada por festividades) en D1.200 de la sala de reunión de 6 pm a 7:30 pm. Hay una tasa de solicitud de \$10 por año para cubrir el seguro.

## Instructional Resources

### Summer Stock

A compilation of laboratory-based classroom activities developed by teachers in the Summer Research Program.

### Equipment Loan

STARS has equipment for loan to area science teachers. We have gel electrophoresis kits, a spectrophotometer, PCR machines, glassware, and more!



Please visit our website at:  
([www.utsouthwestern.edu/STARS](http://www.utsouthwestern.edu/STARS))  
or contact us for a list of supplies.

### Interactive Bioethics Dilemma

The Ethics Program and STARS invites teachers and students to comment on the Fall and Spring Ethics Dilemma Cases. Comments and perspectives from the Ethics Program will be posted at the end.

### Science Suitcases

The comprehensive portable labs with a week's worth of curriculum activities are available for check out by teachers (see insert).

### Virtual Instruments

The Virtual Instruments, the Virtual Microscope and Virtual Spectrophotometer, are computer programs that simulate scientific instruments (see insert).

## Science Outreach Programs



A number of STARS programs have been developed to enrich the science curriculum without requiring the need to travel to the UT Southwestern campus. Contact us if you are interested in taking advantage of any free program described below.

### Science Fair Judges

Faculty, staff and students are recruited to judge local science fairs. No more than 2 judges can be provided for any single school event.



### Science Ambassadors

Volunteers travel to area schools to speak on various topics related to biomedical research, disease, or careers.

### Student Mentoring Program

UT Southwestern faculty act as mentors to advise and to direct students, via phone or email, working on research projects.



## Science Suitcases



The science suitcases were developed with support from the Howard Hughes Medical Institute. These comprehensive portable labs with a week's worth of curriculum activities (animation videos, teacher/student manuals, games, wet labs/lab supplies, and more) were developed by students in the Biomedical Communications master's degree program at the School of Health Professions in collaboration with the Dallas Museum of Nature and Science. We currently have 4 science suitcases for check-out (Enzyme Instigator, Organelle Extravaganza, Photosynthesis, and Evolution) and 3 science suitcases (Membranes, Genetic Diseases, and Cellular Respiration) that are in production. Contents are as follows:

### Enzyme Instigator

- 1) Pre-Quiz
- 2) Homework Handout
- 3) Animation Video  
(with study questions)
- 4) Manipulable hands-on model -  
teacher demo (enzyme & 3 substrates )
- 5) Jeopardase game
- 6) 2 Labs a) (Milk & Renin) b) (Gelatin & Fruit Juice)  
Roles of pH and temperature enzyme activity
- 7) Post-Quiz



### Organelle Extravaganza

- 1) Pre-Test
- 2) Animation Video (23 minutes)  
(with study questions)
- 3) Protein Production Game
- 4) 3 Labs a) Plant vs. Animal Lab  
(onion skin & cheek cells)



## Science Suitcases

- b) Paper Chromatography (spinach & acetone)
- c) Feeding Paramecia Lab
- 5) Post-Test

### Lights, Carbon, Action: Photosynthesis Suitcase

- 1) Pre-Test
- 2) Award Winning Animation Video  
(with study questions)
- 3) Leaf Cell Model
- 4) Sugar Rush! Board Game
- 5) 3 Wet-Labs
  - a) Stomata! Stomata!
  - b) Reactions in the Dark
  - c) Floating Leaf Disks
- 6) Post-Test



### Evolution

- 1) Pre-Test
- 2) Animation Video  
(with study questions)
- 3) Beak Niche Adaptation Game  
(natural selection, gene flow,  
and genetic drift)
- 4) Fossil Lab
- 5) Post-Test

Teachers can also watch STARS Science Suitcases Videos at [vimeo .com](https://www.vimeo.com).

In the "Search Videos" box, type UT Southwestern STARS.

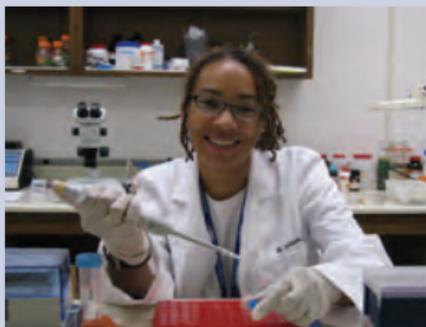
## Summer Research Program for Teachers

This eight-week program is designed to give middle and high school teachers from North Texas an opportunity to work side-by-side with a faculty host in a research laboratory. SRP participants typically perform independent research projects in collaboration with their mentors. This is a great opportunity to learn the latest in research techniques from internationally renowned scientists, including those members of the National Academy of Sciences, Institute of Medicine, and other distinguished faculty. Teachers use their new found knowledge and skills to develop classroom activities that relate to their areas of research. They also create a poster and present their research to peers and staff on campus.



### **SRP for Teachers (stipend and funds for classroom supplies)**

- Rekindle your interest in science
- Learn new techniques and skills
- Develop activities that relate your research experience to the classroom
- Open to any teacher in the state of Texas



## Summer Research Program for Students

This eight-week program gives high school students from North Texas an opportunity to work side-by-side with a faculty host in a research laboratory. SRP participants perform independent research projects in collaboration with their mentors. This is a great opportunity to learn the latest in research techniques



from internationally renowned scientists, including members of the National Academy of Sciences, Institute of Medicine, and other distinguished faculty. Upon completion of the program, students present their research to peers and staff on campus. Students also present their research at their schools.



### SRP for Students (stipend is provided)

- Encourages DFW students to pursue science-related careers



- Learn new techniques and skills
- Gain valuable experience in a challenging setting
- Applications are available online December to February for high school juniors

## Programa de investigación de verano para estudiantes (SRP)

Este programa de ocho semanas da a los estudiantes de la preparatoria del norte de Texas la oportunidad



de trabajar lado a lado con un host de facultad en un laboratorio de investigación. Los participantes SRP realizan proyectos de investigación independientes en colaboración con sus mentores. Esto es una gran oportunidad

para conocer lo último en técnicas de investigación de científicos de renombrados internacional, incluyendo a los miembros de la Academia Nacional de Ciencias, Instituto de medicina y otros distinguidos profesores. Al finalizar el programa, los estudiantes presentan sus investigaciones a sus compañeros y al personal en el campus. Los estudiantes también presentar sus investigaciones como emisarios de la ciencia en sus escuelas.



### SRP para estudiantes (estipendio se proporciona)

- Alienta a estudiantes de DFW seguir carreras relacionadas con la ciencia



- Aprender nueva técnicas y habilidades
- Ganancia experiencia valiosa en un desafiante
- Aplicaciones estan disponible en linea Diciembre a Febrero para estudiantes de la escuela preparatoria en el undecimo grado

## Tours



Each year close to 3,000 middle and high school students and teachers from all over the North Texas area travel to the UT Southwestern campus for an outstanding informal learning experience.

- Tours are customized to the individual needs of the teacher and give real-life application to the traditional classroom curriculum.
- We welcome groups with a maximum of 30 students to allow us to maximize the quality and variety of the experience.
- Our calendar fills up fast, so call or email early to reserve a tour date!



Please visit our website  
[www.utsouthwestern.edu/STARS](http://www.utsouthwestern.edu/STARS)  
for more details

## Virtual Instruments

As a teacher are you frustrated with a lack of scientific equipment? Are half your microscopes broken or out for repair? Would you like to use a spectrophotometer, but even a cheap one is way out of your budget?



We have the answer! We have developed Virtual Instruments, the Virtual Microscope and the Virtual Spectrophotometer. These are computer programs that simulate scientific instruments. Students can manipulate dials, knobs, etc.

The download or CD comes with a Teachers Manual, QuickStart Guide, and Lesson Plans.

The Virtual Microscope comes with pre-loaded slides (normal vs. diseased tissue, plant mitosis, etc). Students can learn about the parts of the microscope with a click of a button or calculate the number of cells in a specific mitotic cell cycle. With the attached camera students can even save or print a micrograph of what they see in the scope and send it to the teacher for comment.



The Virtual Spectrophotometer comes with virtual solutions, or you can make your own (instructions are included). Your students can determine the absorbance of and calculate concentrations of solutes with Beer's Law. Some of the samples provided even change over time as they are oxidized; students can observe this and plot the rate of oxidation.

The software runs on the PC or on Macintoshes with Windows emulation. It is available (at no charge to teachers) on a CD (request one from the STARS office) and on a website for download at <https://ais.swmed.edu/starslab>.