Building a Successful Student Experiential Learning Program

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Associate Professor of Environmental Science
University of Texas at San Antonio

What We Are.
TREE Program

TEACHING AND
RESEARCH IN
ENVIRONMENTAL
ECOLOGY

Established in 2008

Our Mission

To educate and assist students of diverse background to become leaders in natural resources and conservation in order to protect our natural resources and promote sustainability.

Participants

UTSA ROADRUNNERS

FOREST SERVICE DEPARTMENT OF AGRICULTURE USDA

Science you can use! SOUTHERN Research Station

CPS ENERGY

Northside Independent School District

girl scouts of southwest texas

City of Boerne

About Bexar County

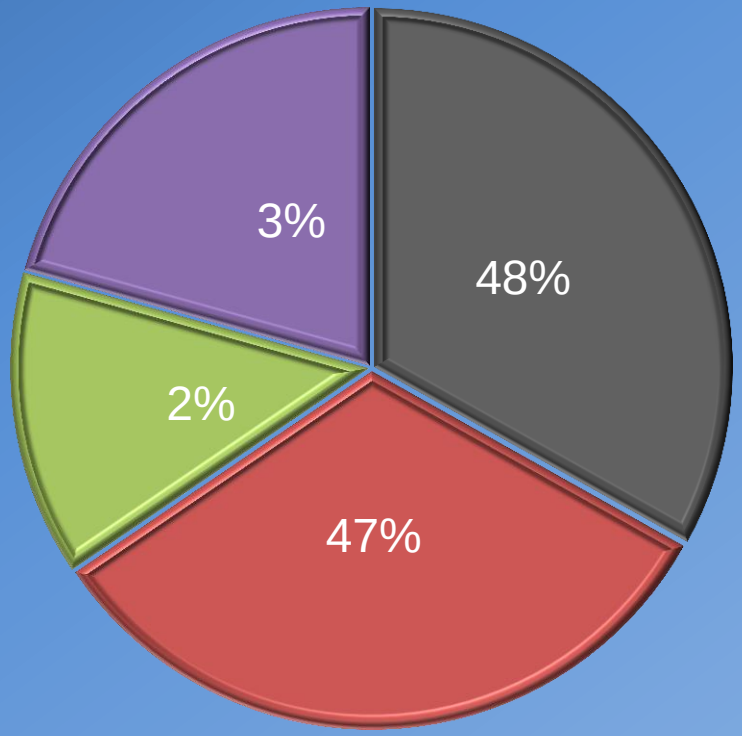
- Largest City – San Antonio
- Population in 2013 –
  ~ 1.8 million
- 59.1% Hispanic or Latino
- Median household income - $49,141
- 17.8% persons below the poverty level

About UT San Antonio

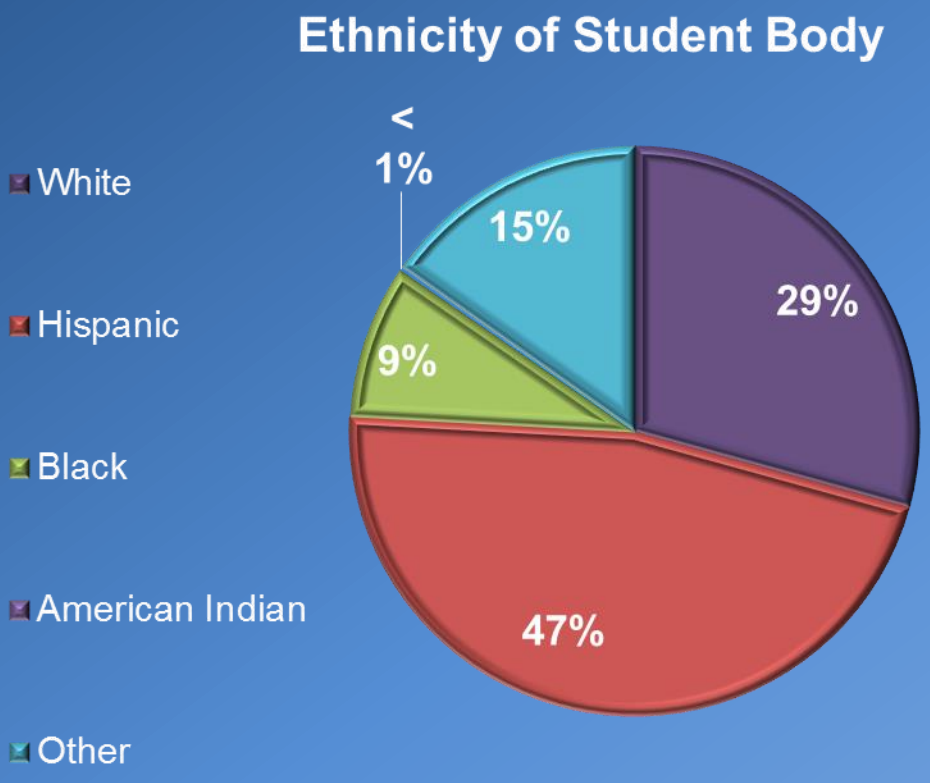
- Relatively young University within the UT System – Established in 1969
- Current enrollment – 30,300
- 65 bachelor’s, 49 master’s, and 21 doctoral degrees

About UT San Antonio

- Bexar County
- Other Texas counties
- Out-of-State
- International



About UT San Antonio



About UT San Antonio

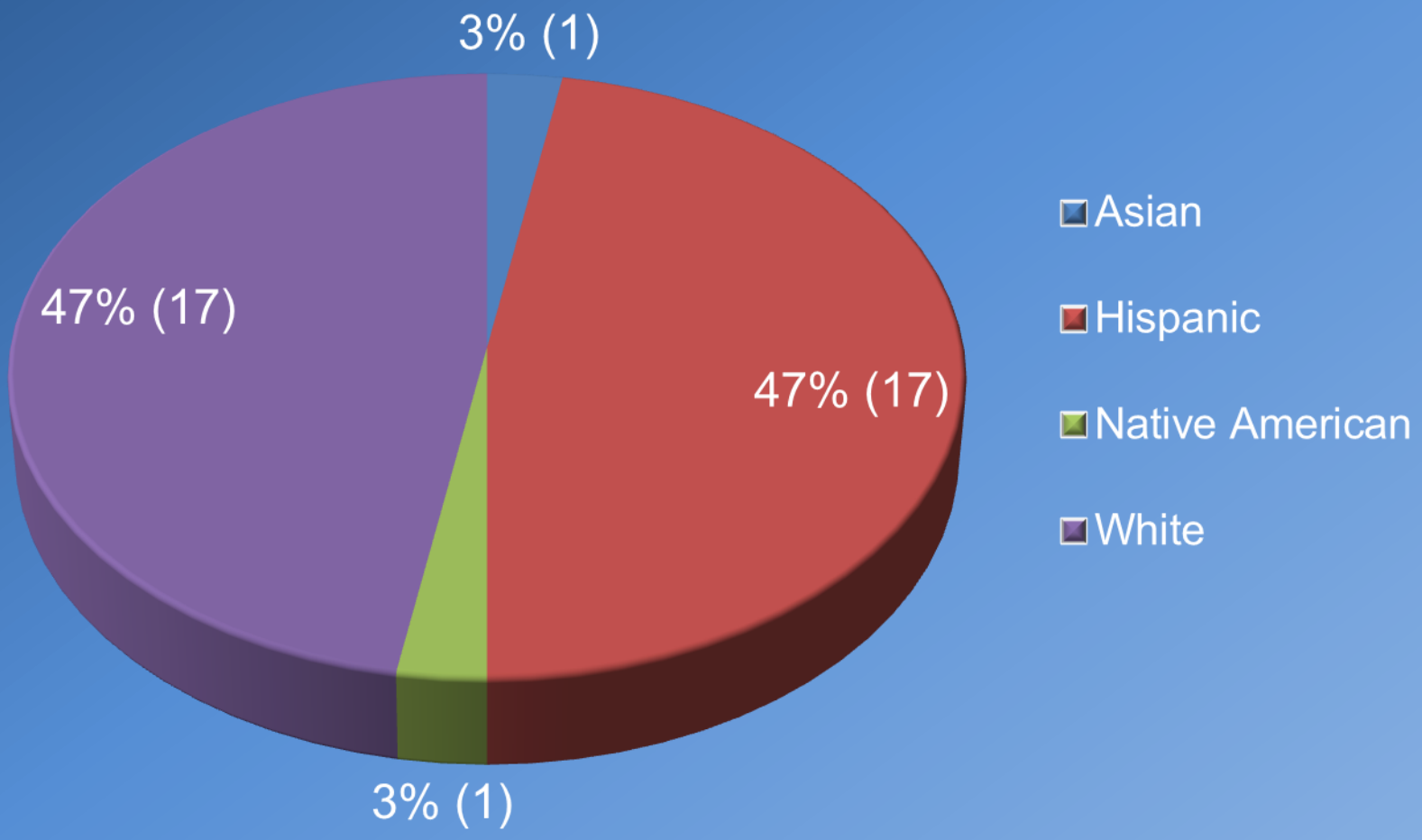
- **UT San Antonio ranks No. 7 in the nation for the number of undergraduate degrees awarded to Hispanic students***
- **No. 10 nationally in the number of master's degrees awarded to Hispanics.**

*Hispanic Outlook in Higher Education magazine rankings.

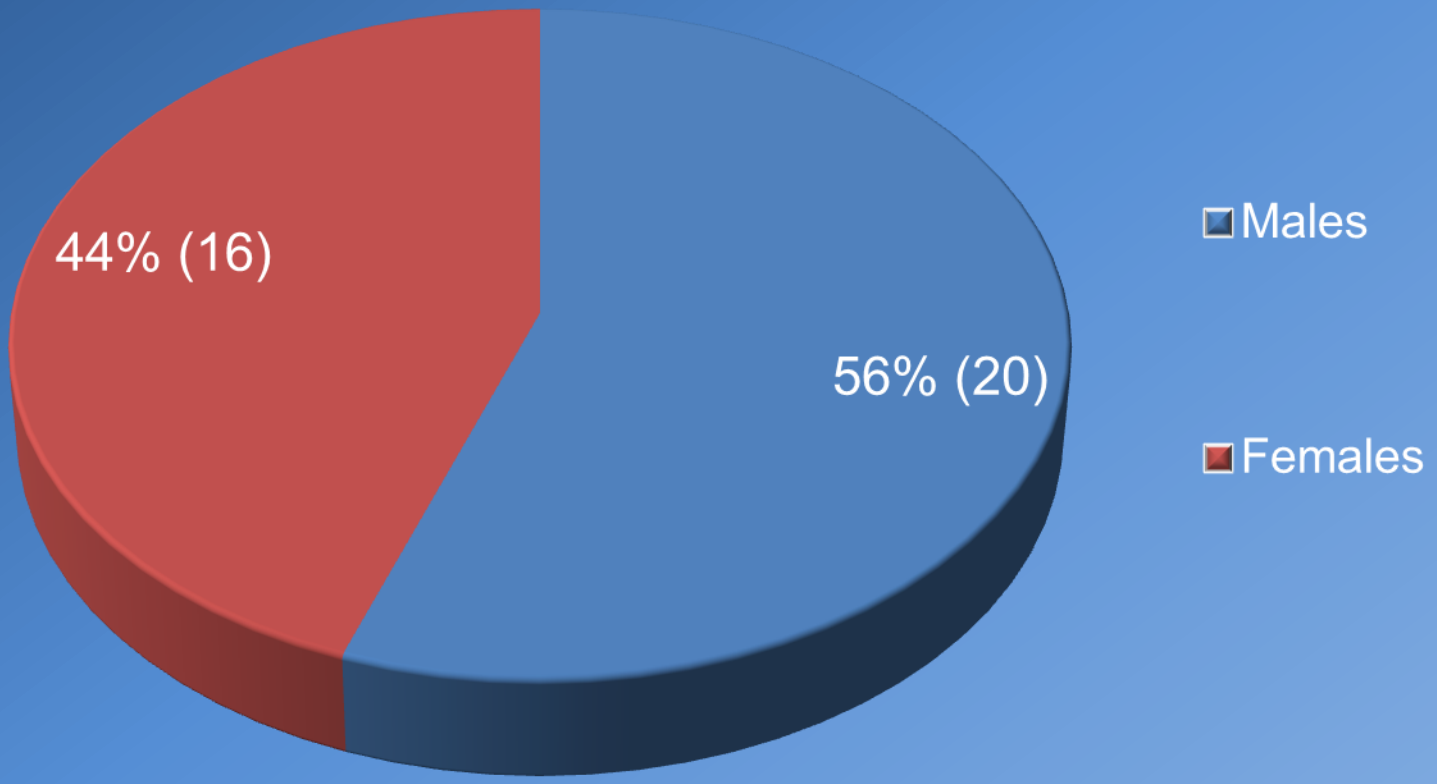
About UT San Antonio

Demographics of Students in TREE Program

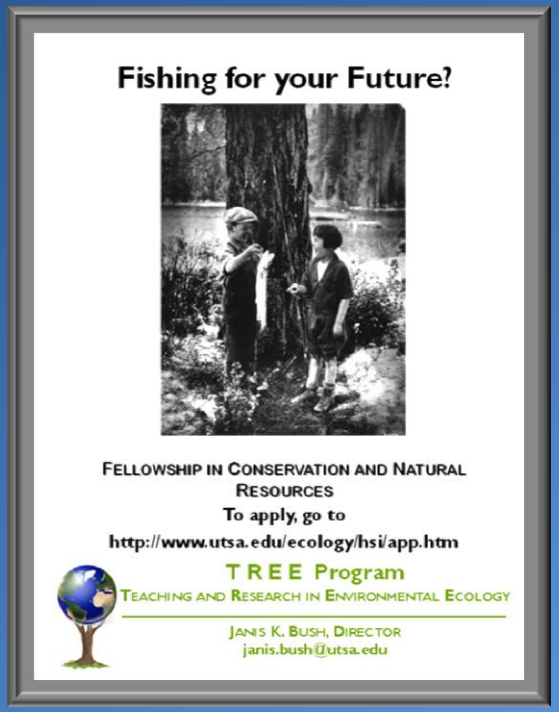
Ethnicity



Gender



What We Do
Recruit



Workshops

- **Study Skills**
  - **Time management**
  - **Motivation and Procrastination**
  - **Note Taking**
  - **Communicating with professors**

Workshops

Research Boot Camp

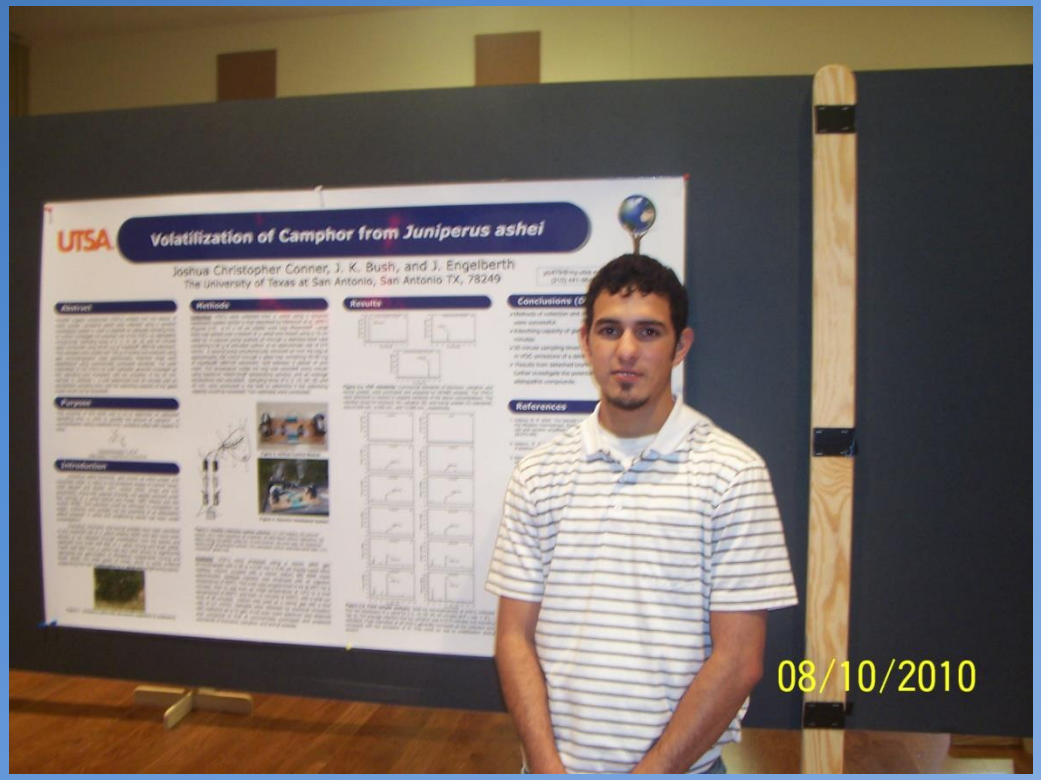
Workshops

- **Scientific Writing**
  - **General science writing**
  - **Use of reference management software**

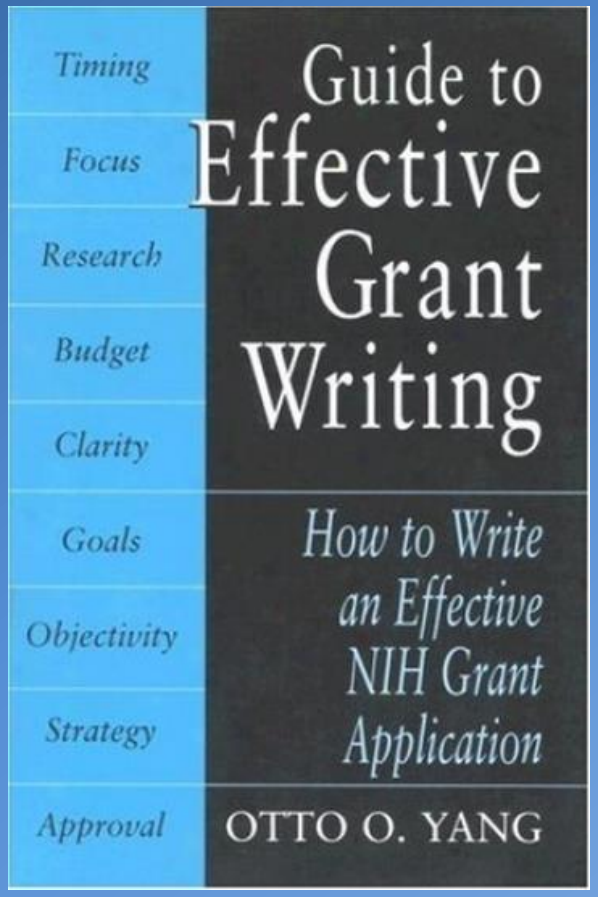
EndNote
...Bibliographies Made Easy™

Workshops

- **Research Skills**
  - **Preparing poster presentations**
  - **Preparing oral presentations**



Workshops



UTSA THE GRADUATE SCHOOL
THE UNIVERSITY OF TEXAS AT SAN ANTONIO

Workshops

Media Training

Role-Model Seminars

- Research Scientists from across the country
- Local, State and National Conservation/Natural Resource Employees
  - City of San Antonio Conservation Biologists
  - Texas Parks and Wildlife Biologists
  - US Forest Service Biologists

Role-Model Seminars

Francisco Ayala, Ph. D.

University of California –Irvine

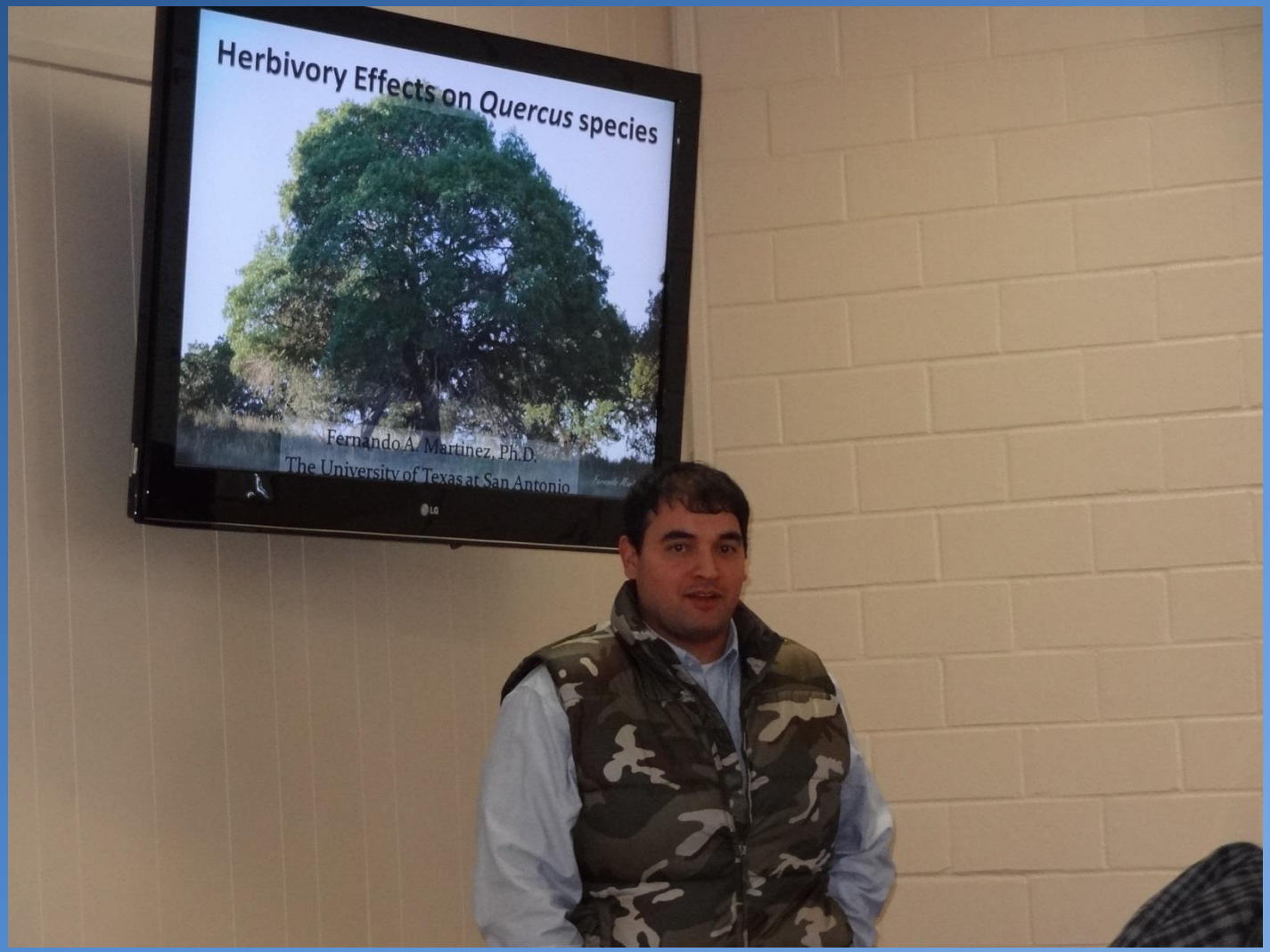
Awarded 2001 National Medal Of Science and 2010 Templeton Prize.

Member: National Academy of Sciences

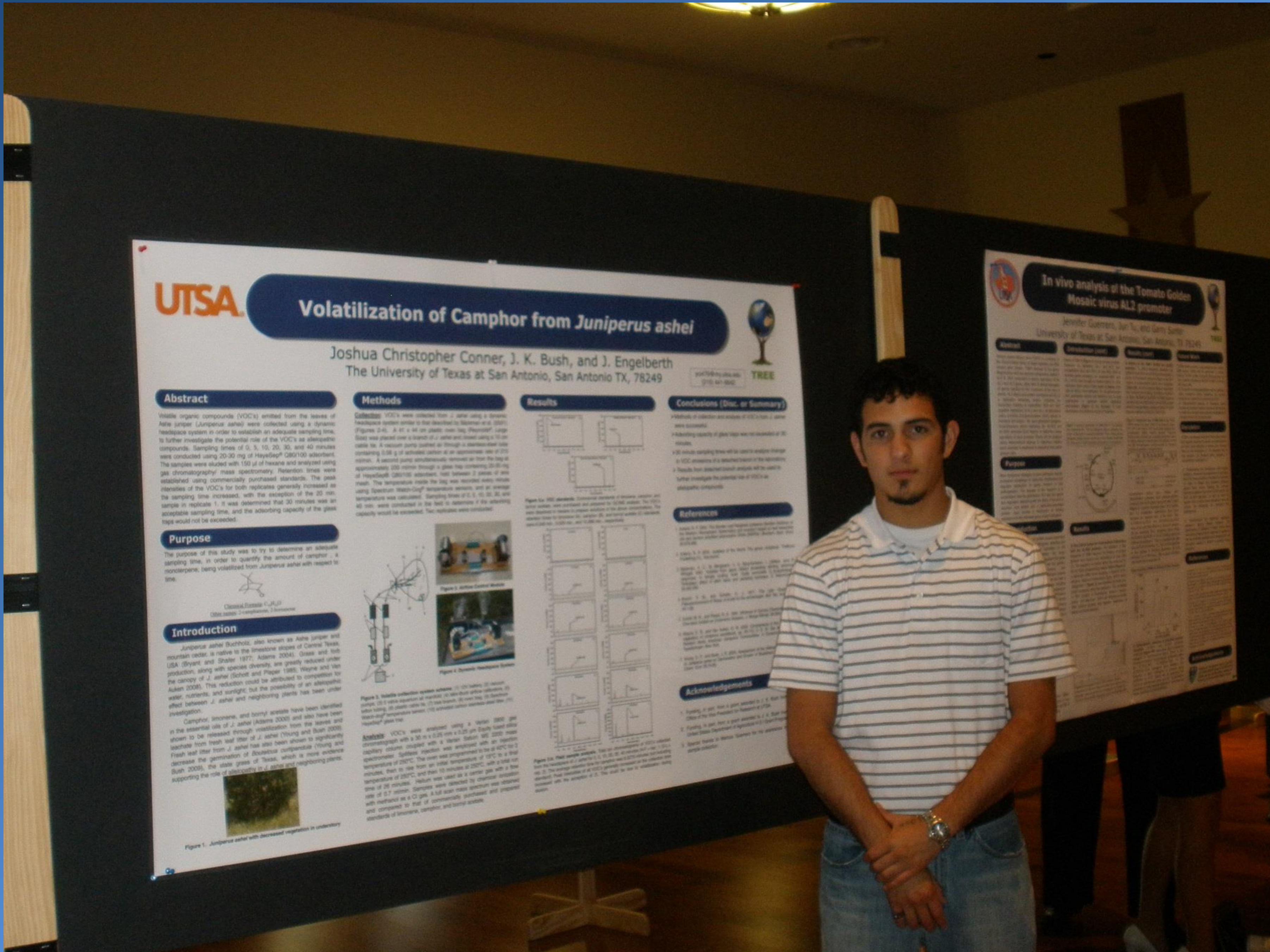
Role-Model Seminars

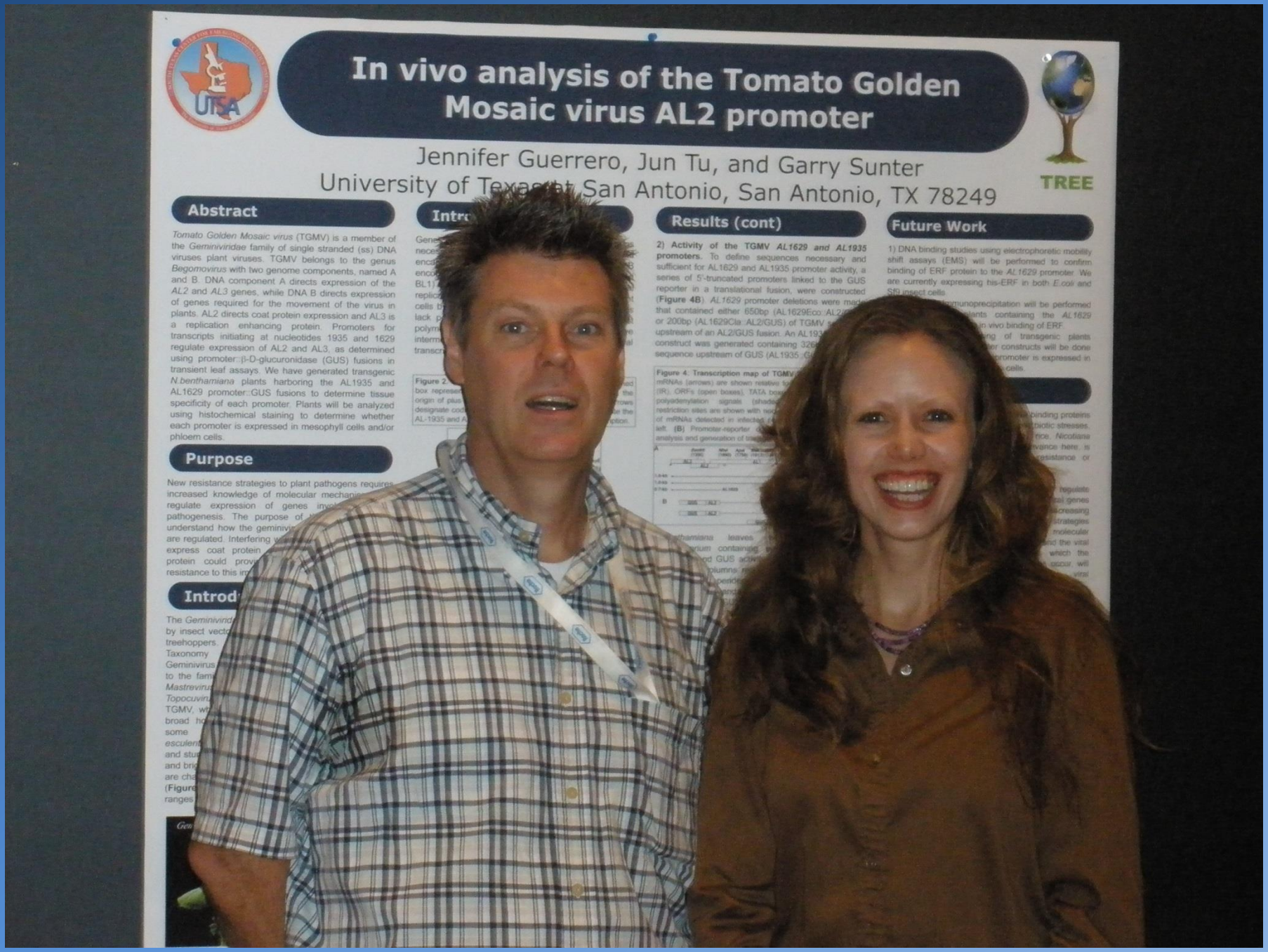
Adam Sepulveda, Ph. D.
University of Montana

Local and National Research Conferences


Herbivory Effects on Quercus species
Fernando A. Martinez, Ph.D.
The University of Texas at San Antonio

EXIT
STUDENT POSTER
RP7
UTSA
An Analysis of Nitrogen Content in Central Texas
Quercus Species as a Function of Herbivory
TREE
Jewell Lee M. Cozort, Fernando A. Martinez and Janis K. Bush
The University of Texas at San Antonio, San Antonio TX, 78249
electronicity3@hotmail.com
(321) 514-5683
Methods
Results
Results – con't
Quercus sinuata var. breviloba
Quercus buckleyi
Quercus fusiformis
Control
100 % Simulated Herbivory
66 % Simulated Herbivory
33 % Simulated Herbivory
Natural
Discussion
References
Acknowledgements


UTSA
Volatilization of Camphor from Juniperus ashei
Joshua Christopher Conner, J. K. Bush, and J. Engelberth
The University of Texas at San Antonio, San Antonio TX, 78249
TREE
Abstract
Methods
Results
Conclusions (Disc. or Summary)
Purpose
Introduction
References
Acknowledgements
In vivo analysis of the Tomato Golden Mosaic virus AL2 promoter


In vivo analysis of the Tomato Golden Mosaic virus AL2 promoter
Jennifer Guerrero, Jun Tu, and Garry Sunter
University of Texas at San Antonio, San Antonio, TX 78249
TREE
Abstract
Tomato Golden Mosaic virus (TGMV) is a member of the Geminiviridae family of single stranded (ss) DNA viruses plant viruses. TGMV belongs to the genus Begomovirus with two genome components, named A and B. DNA component A directs expression of the AL2 and AL3 genes, while DNA B directs expression of genes required for the movement of the virus in plants. AL2 directs coat protein expression and AL3 is a replication enhancing protein. Promoters for transcripts initiating at nucleotides 1935 and 1629 regulate expression of AL2 and AL3, as determined using promoter::β-D-glucuronidase (GUS) fusions in transient leaf assays. We have generated transgenic N.benthamiana plants harboring the AL1935 and AL1629 promoter::GUS fusions to determine tissue specificity of each promoter. Plants will be analyzed using histochemical staining to determine whether each promoter is expressed in mesophyll cells and/or phloem cells.
Purpose
Results (cont)
Future Work

K-12 Outreach

Northside
Independent
School District


UTSA
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UTSA
UTSA

girl scouts
of southwest texas


Follow us @cpsenergy
UTSA


EXIT
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Research Experiences

UTSA
ROADRUNNERS

City of Boerne

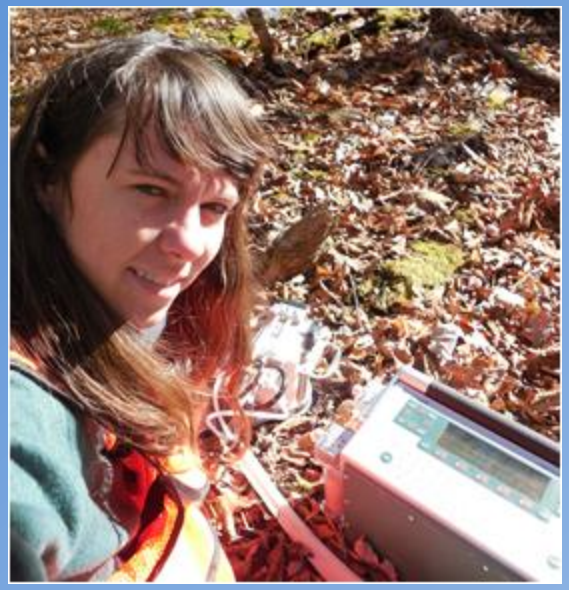

The City of Grey Forest
A Scenic Playground


GREY FOREST
FIRE


Southern Research Station
USDA Forest Service


COWEETA
Hydrologic Laboratory
SOUTHERN
RESEARCH STATION


NANTAHALA
National
Forest
U. S. DEPARTMENT OF AGRICULTURE



LTLT

Land Trust for the Little Tennessee


Bent Creek
Experimental Forest
SOUTHERN
RESEARCH STATION
U.S. DEPARTMENT OF AGRICULTURE


UTSA
UTSA
ROADRUNNERS


VALLES CALDERA
NATIONAL PRESERVE
SCIENCE & EDUCATION
CENTER


SANTA FE
National
Forest

What We Have Found.

- Qualitative Case Study
- Three focus groups
  - After one, two, and three years
- Semi-structure interview
  - Open-ended questions
- Used coding to identify common themes

Why the Students Wanted to Participate

1) Sense of Identity

2) They get to do research

3) They get to do organized community service

3) Having a faculty mentor

4) Financial support

What was most helpful

Most: Resume building, travel to scientific meetings, routine group meetings, media training, role-model seminars, conducting their own research

Least: Study skills

Resume Building

Not an exercise in how to build a resume, but rather exposing them to activities they can add to their resumes.

Travel to Scientific Meetings

- Travel to new places
- Calibrate their level of experience and knowledge to students from other areas
- Interacting with others of similar interest
- Creating a sense of empowerment

Group Meetings

- Creating the sense of identity
- Sharing their experiences and learning from others to help manage their college experience
- Educate and motivate for obtaining advanced degrees

Role Model Seminars

- Opened their eyes to career options

Research Experience

- Opened their eyes to the possibilities
- Experience ‘hooked’ them on doing research

Quotes from the External Reviewer

Dr. Richard McGee,
Associate Dean for Faculty Recruitment and Professional Development

"To be candid, I have been working with students and student programs, and serving as external evaluator, for more than 20 years."

“I can honestly say the students in the TREE are the most uniformly positive, appreciative, and committed to their program I have ever seen”

Quotes from the External Reviewer

“ . . . the opportunities provided to them are life-changing.”

“. . . most feel they would have been severely challenged to find their way in their field at UTSA without TREE.”

Quotes from the External Reviewer

"Most striking are the bonds and commitment to helping each other, and their very strong desire to engage in the community"

"I have never seen a group of students, particularly this mixture of undergraduates through graduate students, so eager to do more even though they are all stretched thin with school and life activities."

Final Thoughts

- Importance of the acronym.
- Problems when establishing the program.
- Establishing relationship with governmental or non-governmental agency to over support.