



UNITED TRIBES  
TECHNICAL COLLEGE

## Tribal and State Relations Committee Presentation

March 2, 2016

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## Tribal College and University (TCU) Demographic Information

- United Tribes Technical College (UTTC) is a member of American Indian Higher Education Consortium comprised of 37 tribal colleges and universities (TCUs) with more than 85 sites in the United States
- TCUs provide access to quality higher education to over 80 percent of Indian Country
- All TCUs offer associate degree programs; 13 offer baccalaureate programs; and 5 offer master's degree programs
- Over half of the federally recognized tribes are presented in TCU enrollments
- In 2013-2014, 75 percent of graduates earned degrees; 23 percent earned certificates
- 70 percent of TCU students receive federal financial aid

Source: American Indian Higher Education Consortium (2016)



## United Tribes Technical College (UTTC)

- UTTC was founded in 1969 as an intertribal organization, the United Tribes of North Dakota Development Corporation.
- UTTC was the second tribal college established in the Nation.
- The nonprofit corporation is chartered in the State of North Dakota by the five North Dakota tribal nations to include: Mandan, Hidatsa, Arikara Nations, Sisseton Wahpeton Oyate, Spirit Lake Tribe, Standing Rock Sioux Tribe, and Turtle Mountain Band of Chippewa Indians.
- The ten member UTTC Board of Directors provides governance and is comprised of the chairperson and one delegate from each of the five North Dakota Nations.
- UTTC is accredited through the Higher Learning Commission.

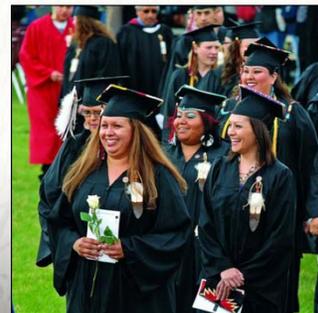
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## Mission Statement

*United Tribes Technical College provides quality post-secondary education and training to enhance knowledge, diversity, and leadership for all Indigenous nations.*

Approved UTTC Board of Directors – August 2015



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## Academic Programs Offered

Program	Diploma	Certificate	AAS	BS
Automotive Technology	x		x	
Business Administration			x	x
Business Management			x *	
Criminal Justice			x *	x
Culinary Arts / Food Service			x	
Elementary Education			x *	x
Environmental Science and Research			x	x
Fine Arts			x	
General Studies			x *	
Graphic Arts			x	
Health, Physical Education and Recreation			x	
Heavy Equipment Operations (HEO)		x		
Human and Social Services (New Fall 2016)			x	
Information Processing Specialist (New Fall 2016)			x	
Information Technology (New Fall 2016)			x	
Medical Coding and Billing		x *		
Nutrition and Wellness			x *	
Practical Nursing			x	
Pre-Engineering			x	
Welding Technology		x		

\* Available online



## Research at Tribal Colleges

### WHY?

- More PhDs get their start at small colleges
- Encourage interest, persistence, and retention of STEM students
- Use science as a means to address community issues
- Speak the language
- Have quality data to support decision-making
- Opportunities unique to Tribal Colleges and UTTC



## Research at UTTC

- Off-Reservation
- Serve Tribes from across the region
- Many students committed to serving their community and protecting natural resources
- Diverse core of researchers and educators in the science and agriculture fields
- Developing a research culture with clear goals and expectations

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## Wanda Agnew, PhD, RD



- ND Farm girl - UND
- Standing Rock Sioux Tribe
  - ND Department of Health
  - UTTC
    - Consultant
    - Faculty in Nutrition Degree – Food is More than Something to Eat
    - Student Advisor
    - Institutional Review Board Chair
    - Grant Manager – USDA Land Grant, FDPIR, ITO WIC, curriculum development

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## UTTC USDA Land Grant Status

1994 – Congressional Designation

- \* Endowment funds from USDA – shared between 37 Tribal Colleges, nationally
- \* Equity/Education - impact in reduction in health disparities and disease prevention
  - \* Culinary Arts/Foodservice
  - \* Nutrition (connect Mother Earth to Health through the kitchen table)
- \* Extension – culturally-relevant community education focus – nutrition and gardening
- \* Research – USDA funded as capacity building



- \* Buffalo (1998-99)
- \* Berries (2001 thru 2007)
- \* Native Plants (2006 – published in peer reviewed journal)
- \* Maize Seed Saving (2014)
- \* Lifeskills (2014)
  - financial and time management
  - relationships and parenting
  - life planning
  - home management and community building

**FUTURE 2016** - Self-perceived health status and food consumption patterns of students at tribal colleges  
AND weed management using various tillage practices (strategic planning)



## UTTC Institutional Review Board

1. **Initiated** in 2003

- Registered with the U.S. Department of Health and Human Services Office for Human Research Protections (OHRP)
- Human Protection – surveys, behavioral health, communication styles, leadership styles, etc.

2. **Partnerships**

- USDA – ARS specifically Grand Forks Human Nutrition Research Center and Mandan ARS station

3. **Continues today** – UTTC Website - monthly meeting dates and Committee membership

**Goal:** UTTC IRB make-up - members from each of the other Tribal Colleges in ND, internal and external

RESEARCH CONNECTIONS – Request Project Investigators (PIs) to share, periodically

- \* annual updates
- \* poster sessions and conference presentations
- \* data results (interpretation and analysis)
- \* final reports – “Summary of Results” or to funding agencies
- \* publications (professional and/or peer reviewed articles)





## Current student projects where Human Protection process was not required



1. Cumulative Cattle and Prairie Dog Grazing Effects on Near-surface Soil Conditions
2. Aldh1a2 Gene Expression in the Mouse Brain with Constitutively Active  $\alpha$ 1-Adrenergic Receptors – Implications for Brain Health
3. Parasite Survey in Select North Dakota Freshwater Fish
4. Soil Salinity and Productivity in North Dakota Grasslands
5. Examination of Synthetic Antioxidants in “All Natural” Dog Feed
6. Virulence of *Chitrid* Fungus in Amphibians in the presence of Atrazine

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## Long-term Ecological Research

### Urban Coyote Study

- USDA APHIS
- GPS Collars on 16 Coyotes
- Proximity, Resource Use, and Corridors
- GIS and Remote Sensing



### Bat Conservation

- NDSU Biology Dept.
- Bio-insecticide, Distributions, Diet, Hybridization
- Advanced DNA techniques



### Invasive Bluegrass

- USDA ARS, Mandan
- Applied range management and Kentucky Bluegrass control
- Landscape-scale applications





## A comparison of the antimicrobial activities of cultivated versus wild Purple Coneflower (*Echinacea angustifolia*)



Marlee Finley  
UTTC Sophomore  
Enrolled, Three Affiliated Tribes  
Bismarck, ND  
Tribal Environmental Science Department

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## Introduction



- Antimicrobial resistance in bacteria is one of the biggest global concerns
- *Echinacea* preparations have become the bestselling herbal immunostimulants in Europe and North America, with sales of \$158M in the U.S. and \$1.3B annually worldwide.
- A number of Native American nations, including the Blackfeet, Cheyenne, Choctaw, Comanche, Dakota, Delaware, and Lakota, use various *Echinacea* preparations for a variety of purposes.
- Plant phytochemicals could provide alternative classes of antibiotics, which may be effective against resistant pathogens

***But, there has been very little scientific research on the plant.***

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## Research Question

- The purpose of this project is to examine the antimicrobial properties of *Echinacea* and to determine differences between cultivated and wild-grown plants.
- The ability to grow my own plants under ideal conditions may produce plants with more antimicrobial agents and allow for easy harvesting for home use.
- I obtained wild plants from fields near Mandan and I am growing my own plants in the lab at UTTC.

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## Methods

- We are using established protocols (SV Chandra 2006; Bauer et al. 1966).
- Bacteria strains (3 gram-pos., 2 gram-neg.) were obtained from stock sources.
- *Echinacea* root extract was placed on a plate and bacterial cultures are counted to determine inhibition of growth.



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## Results?

- Stay tuned...
- Most of the work will be completed over spring break.
- Oral defense of the research will occur in late April.

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## Robert F. Fox, AAS

Land Grant Extension  
Agroecology Technician  
Sahnish/Santee  
Enrolled Member of Three Affiliated Tribes (ND)



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## Breeding Squash for Sustainable Food Systems

- Gold Nugget” Buttercup (bush type) x Hopi Gray
- Use the tribal elders (traditional and planting stories)
- Teach planting, seed saving, for sustainability
- New variety of bush type for small gardening



## Plant Breeding for Sustainability and Seed Sovereignty (Maze seed sovereignty project)

- Surveyed participating communities
- 80 varieties of corn 70 native 10 where controls
- Teach seed saving and breeding to give back to communities.
- Test the corn for nutrition values





## Lifeskills at a Tribal College

- Creation of 12 talking sheets
- Research determined information needed
- Native Talking Style
- Promote Self-Sufficiency



## A retrospective ecological risk assessment of the January 2015 bring spill in western North Dakota



Alexa Azure, MS, EIT  
Pre-Engineering Instructor  
Enrolled, Standing Rock Sioux Tribe



## Introduction and Purpose

- Risk assessments necessary to assess and protect natural resources
- This study examined an incident that occurred on January 6<sup>th</sup>, 2015
  - Approximately three million gallons of brine water
- Purpose was to examine the risks of release to local fathead minnow (*Pimephales promelas*) populations

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## Methods and Analysis

- Concentrations (total chlorides) obtained from the Oilfield Environmental Incident Summary (ND Dept. of Health)
  - Dakota Aquifer composition used to estimate sodium chloride (NaCl) concentrations
  - Estimated NaCl concentrations used to evaluate whether exposures exceeded toxicity endpoints
    - Acute Exposure Endpoints ( $\leq 4$  days)
      - No Observed Effects Level (NOEL)
      - Lethal Concentration (LC50)
    - Subchronic ( $\geq 5$  days and  $> 30$  days) and Chronic ( $> 30$  days) Exposure Endpoints
      - No Observed Effects Concentration (NOEC)
- The risk quotient (RQ) method was used
  - RQ is the ratio of exposure to effect
  - Levels of Concern (LOCs) areas determined

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## Results and Recommendations

- Toxicity endpoints were exceeded at multiple locations on Blacktail Creek and one location on the Little Muddy River
- North Dakota State Water Quality standards
  - Sufficient protection to aquatic vertebrates at the subchronic and chronic exposure durations, but not acute level
- This assessment would be applicable to future spills of similar size.
- Recommendations for further research
  - Examine effects on fathead minnow populations by collecting samples at locations where level of concern was exceeded
- The importance of this research highlights potential effects of accidental releases to North Dakota water resources

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## Epi Study and BASICS Study

Dr. Angelique Gillis  
Psychology Instructor  
United Tribes Technical College  
Arikara/Turtle Mountain Chippewa,  
Enrolled member of Three Affiliated Tribes

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## Behavioral Health Research

- TCU Student Alcohol, Drug, and Mental Health Epidemiology Survey (Epi Study)
  - Includes 23 TCUs
  - Looks at Substance Abuse and Mental Health
  - Risk Factors as well as Protective Factors
- Brief Alcohol Screening Inventory for College Students (BASICS)
  - Includes 6 TCUs of the original 23 TCUs involved in the Epi Study
  - Cultural Adaptation Trial-To adapt, manualize, and implement a culturally and geographically contextualized version of BASICS in TCUs.
  - Motivational Interviewing (MI)
- UTTC included in both the Epi Study and the BASICS study
  - TCU Advocate for UTTC

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## BASICS Procedure

- 1 TCU Advocate from each TCU
- Train “Interviewers” in Motivational Interviewing
- Students complete the survey (Epi Study Measures) and receive \$40 for their participation. Students who complete the survey are then randomly selected for the “intervention.”
- Intervention consists of 1-hour session with Interviewers (MI to look for and reinforce “change talk”): look at substance use/abuse; how to determine number of drinks per sitting; how to determine BAC; where to get help. Receive \$10 for participation.
- Students who go through the intervention are then followed-up with and assessed at 3-months, 6-months, 9-months, and 1 year.

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## Where are we now?

- Now have about 235 completed surveys at UTTC
- 3 completed MI
- Data is currently being entered by UW research team and will be analyzed when completed.
- Aggregate and de-identified data will be provided to each TCU. Also, each TCU will have access to only their college's data.
- Nationwide, the survey completion rate is approaching 3100 respondents-making this the largest psych-epi study with Native Americans



## Research Summary

- Research at small colleges is a growing trend
- We teach Science as a means for addressing local, community issues
- Research is a key to recruiting and retaining students throughout challenging programs
- Research enhances our connection to the North Dakota communities that we serve.



## Benefits to Students

- Advanced training
- High Technology
- Opportunities to communicate
- Hands-on, experiential, etc.
- Preparation for grad school
- Making a difference!
- Work with agencies, institutions, industry



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## Benefits to Partners

- Eager research assistants
- Differing viewpoints
- Familiarity with lands and people
- Cultural education
- Broader participation



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## Benefits to Communities

- Research and researchers they can trust
- Graduates skilled in critical inquiry and scientific methodologies
- Outreach and extension education
- Qualified teachers for rural school systems
- Data to support change



## Future

- Program Sustainability
- Educational Research on Student Learning
- Impacts of Changing Landscapes
- Expanding Collaborations
- Reaching More Communities





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