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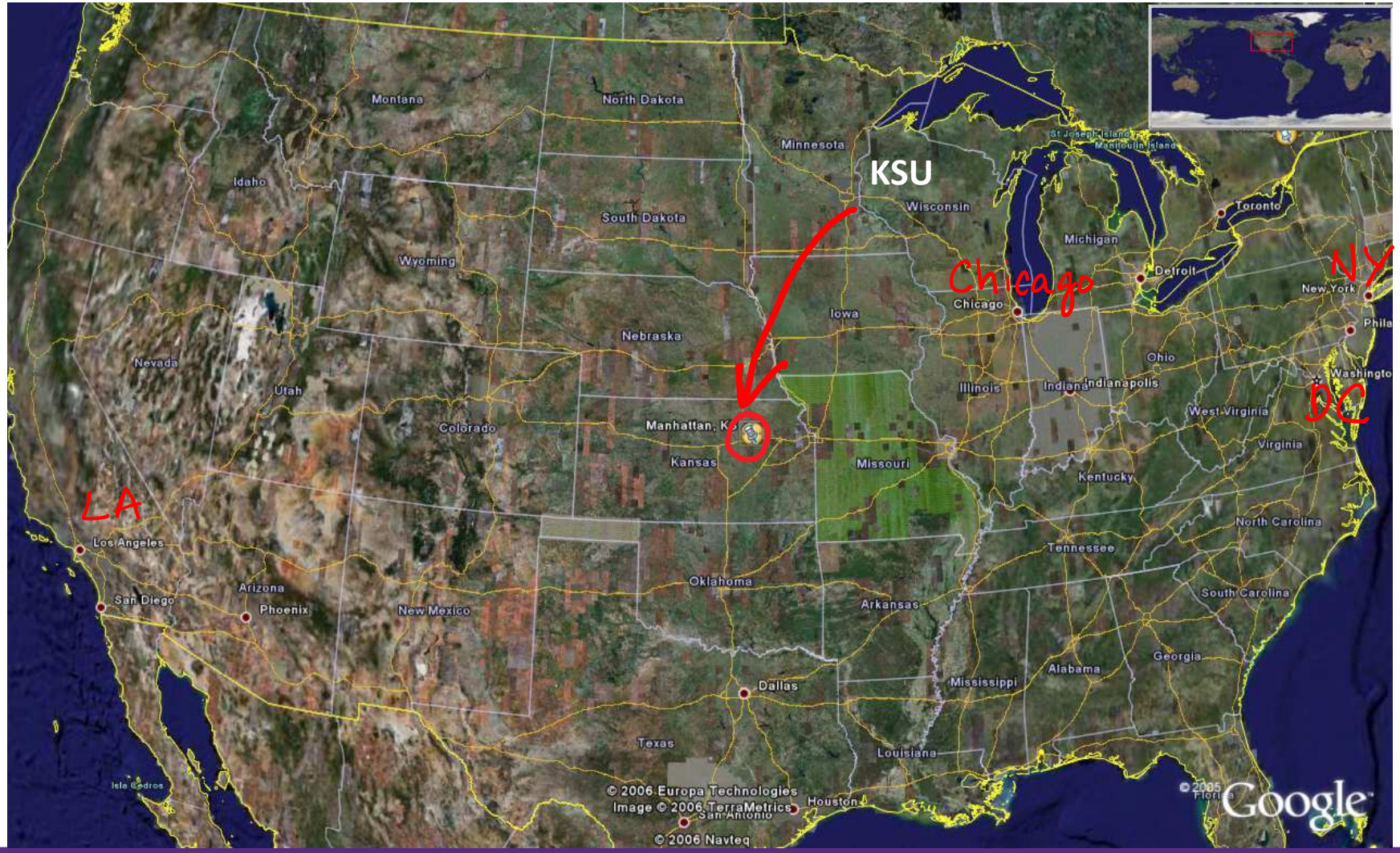
My Fulbright Goals

- Share my technical expertise
- Share my teaching knowledge
- Learn about National Mining University
- Learn about Ukrainian education system
- Learn about Ukrainian culture

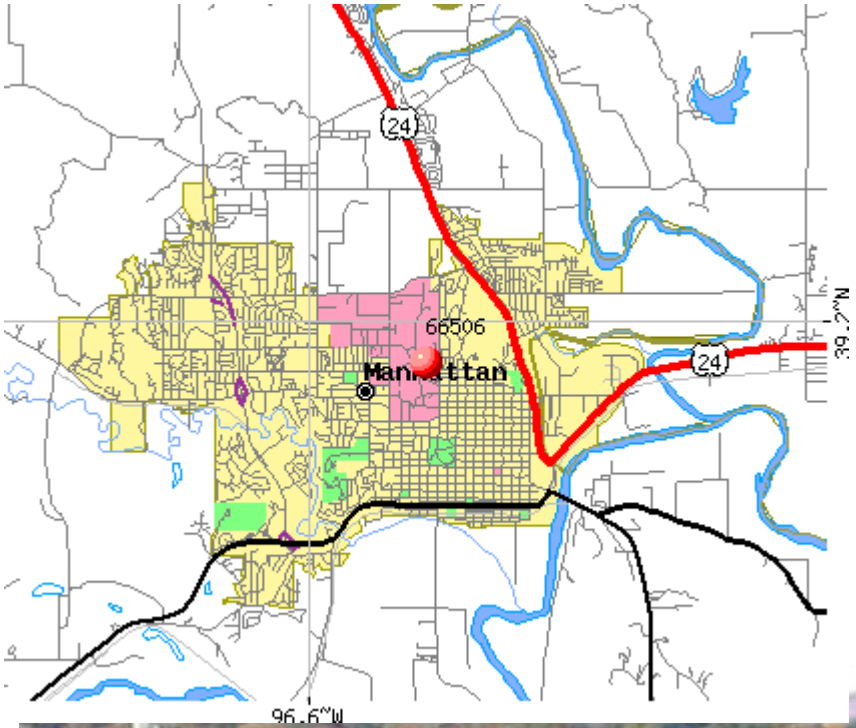
FULBRIGHT

Kansas		Ukraine		Dnipropetrovsk Oblast	
Area (km^2)	Population	Area (km^2)	Population	Area (km^2)	Population
213,096	2,911,641	603,500	42,539,000	31,974	3,292,400



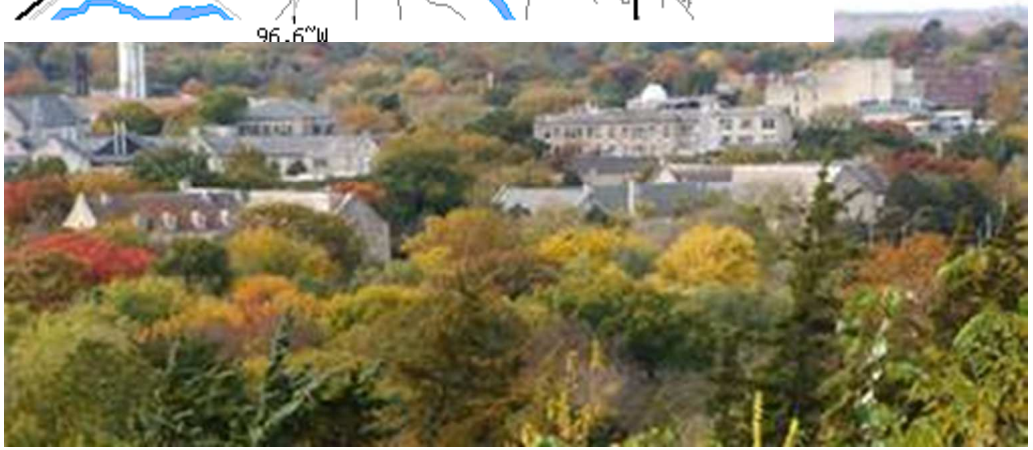
State of Kansas

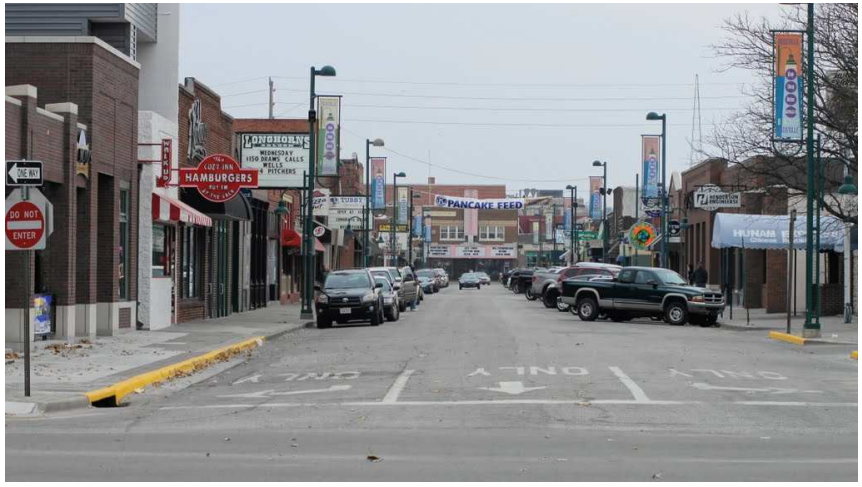
Manhattan, Kansas



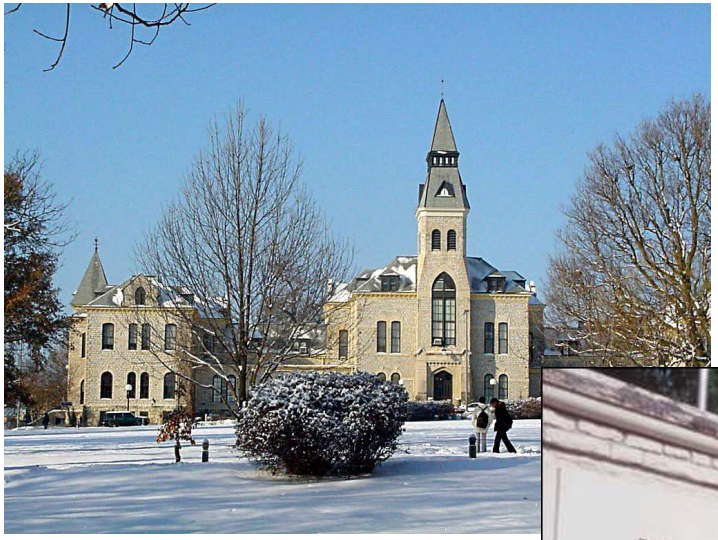
CITY OF MANHATTAN
KANSAS

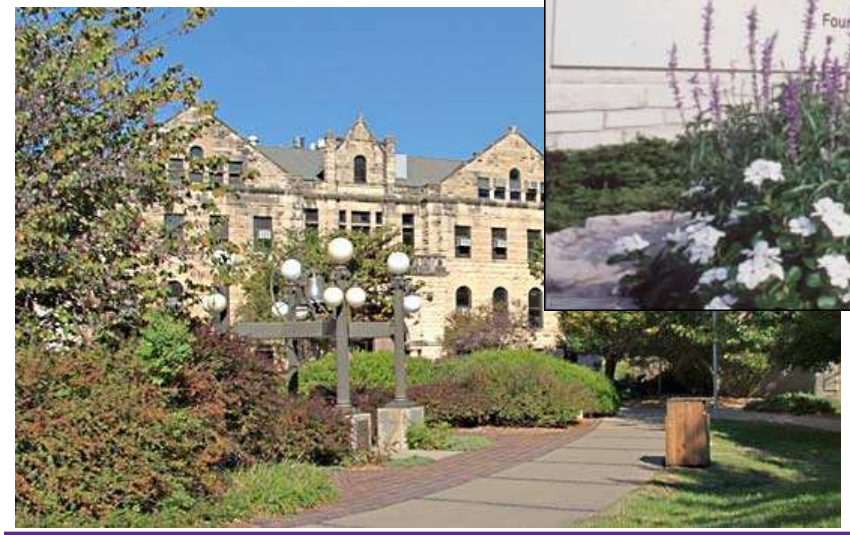
Population: 56,000





Kansas State University





KSU – By the numbers

1863 Year KSU was founded

24,300+ students (from all 50 states and >100 countries)

250+ undergrad majors & options; 65 M.S. degree; and 45 Ph.D degree programs

9 colleges (Agriculture, Architecture, Arts & Sciences, Business Admin, Education, Engineering, Human Ecology, Aviation & Technology, Vet Med)

LAND-GRANT SYSTEM

Morrill Act of 1862 - provided grants of federal lands to states and territories agreeing to establish a public institution for teaching of agriculture and the mechanical arts

LAND-GRANT SYSTEM

KSU Experiment Station Center
Hays Roundup - 1917

Hatch Act of 1887 - federal support for ag research at the state and territorial level; establishment of Ag Experiment Stations at each land-grant institution


Northwest Indian College
Aaniiih Nakoda College
Blackfeet Community College
Turtle Mountain Community College
Cankdeska Cikana Comm. College
White Earth Tribal & Community College
Lac Courte Oreilles Ojibwa Community College
Keweenaw Bay Ojibwa Community College**
Bay Mills Community College
Leech Lake Tribal College
Fond du Lac Tribal & Comm. College
Fort Berthold Comm. College
Stone Child College
Fort Peck Community College
Salish Kootenai College
Washington State University
Univ. of Idaho
Oregon State University
Montana State University
Little Big Horn College
Chief Dull Knife College
United Tribes Technical College
North Dakota State Univ.
Sitting Bull Coll.
Sisseton Wahpeton College
Si Tanka/Huron Univ.
Oglala Lakota College
South Dakota State University
Sinte Gleska Univ.
University of Minnesota
College of Menominee Nation
Saginaw Chippewa Tribal College
University of Wisconsin
Michigan State University
University of Vermont
University of Maine
University of Massachusetts
University of New Hampshire
Cornell University
University of Rhode Island
University of Connecticut
Pennsylvania State University
Rutgers University
West Virginia University
University of Delaware
Ohio State University
Delaware State University
Central State University*
University of Maryland College Park
Purdue University
University of Maryland Eastern Shore
West Virginia State Univ.
University of the District of Columbia
Virginia Tech
Virginia State University
University of Kentucky
Kentucky State University
University of Tennessee
Tennessee State University
North Carolina A&T State University
North Carolina State University
Clemson University
South Carolina State University
Alabama A&M Univ.
Auburn University
University of Georgia
Tuskegee University
Fort Valley State University
Mississippi State University
Alcorn State University
Louisiana State University
Florida A&M University
University of Florida
Southern University and A&M College
Prairie View A&M University
Texas A&M University
University of Arkansas at Pine Bluff
University of Arkansas
Oklahoma State University
Langston University
College of the Muscogee Nation**
Haskell Indian Nations University
University of Missouri
Lincoln University
University of Illinois
Iowa State University
Kansas State University
University of Nebraska
Colorado State University
Little Priest Tribal College
Nebraska Indian Community College
University of Wyoming
Utah State University
University of Nevada
D-Q University
University of California
Diné College
Navajo Technical College
Institute of American Indian and Alaska Native Culture and Arts Development
Southwestern Indian Polytech. Institute
New Mexico State University
University of Arizona
Tohono O'Odham Community College
University of Hawaii
HAWAII
PACIFIC BASIN
NORTHERN MARIANAS
Northern Marianas College
GUAM
University of Guam
FEDERAL STATES OF MICRONESIA
College of Micronesia
AMERICAN SAMOA
American Samoa Community College
Ilisagvik College
ALASKA
University of Alaska
PUERTO RICO / U.S. VIRGIN ISLANDS
University of Puerto Rico
University of the Virgin Islands
1862
1890
1994
* Central State University (CSU), in Ohio, has been designated as an 1890 LGU. Under the law, CSU will be eligible to receive certain capacity funds in October 2014 and others in fiscal year 2016.
** College of the Muscogee Nation and Keweenaw Bay Ojibwa Community College are designated as 1994 LGUs and will be eligible to receive capacity funds in October 2014.

Kansas State University

Land-Grant Mission:

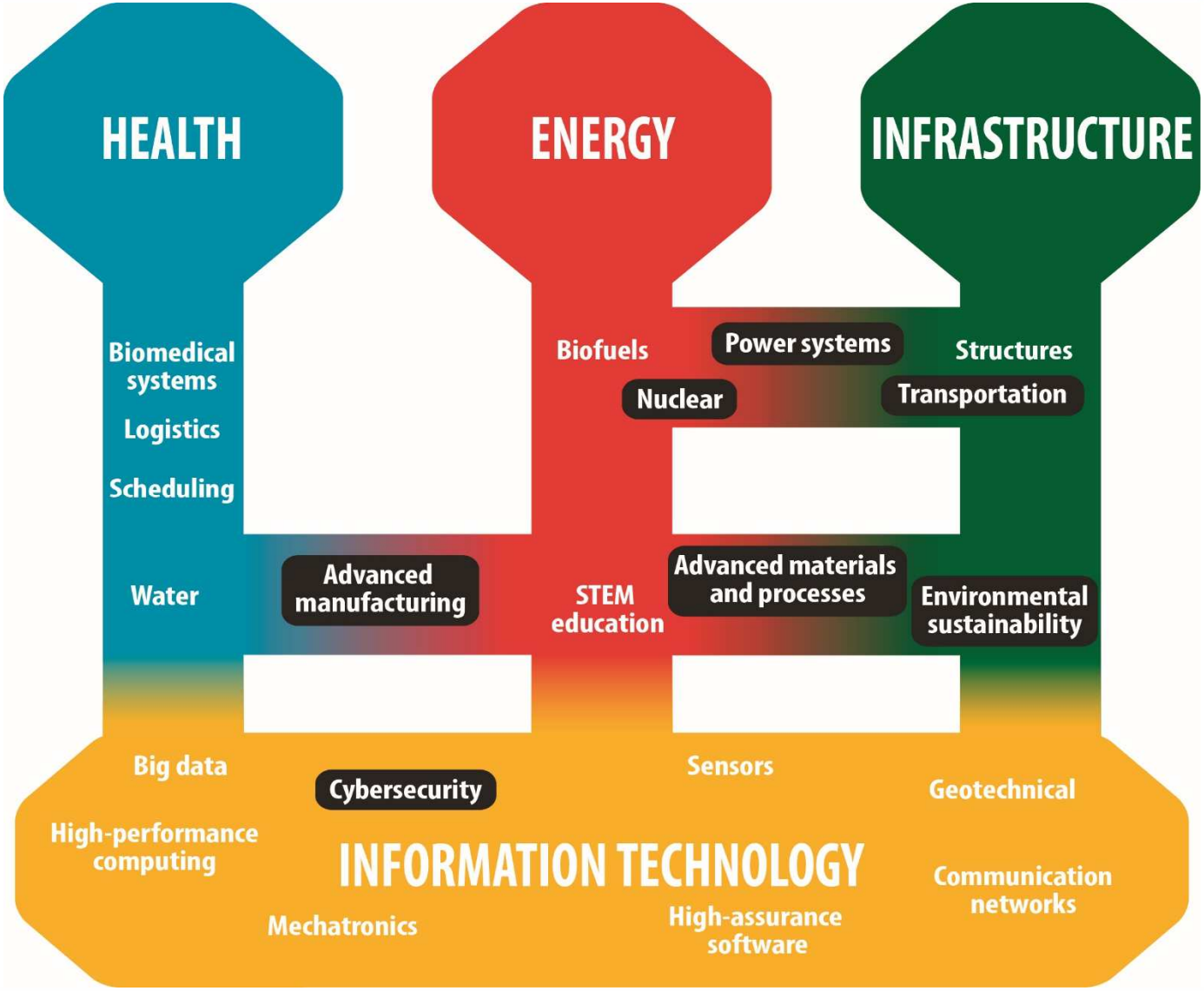
- Teaching: - educate students
- Research - discover and apply knowledge
- Extension - provide engagement, extension, outreach and service

College of Engineering

Engineering - By the Numbers

- 8 Academic departments
- 3,666 undergraduate students in 11 degree programs
- 531 undergraduate degrees granted
- 474 graduate enrollment
- 138 graduate degrees granted
- 123 Tenured, tenure-track faculty

Engineering - Research Areas



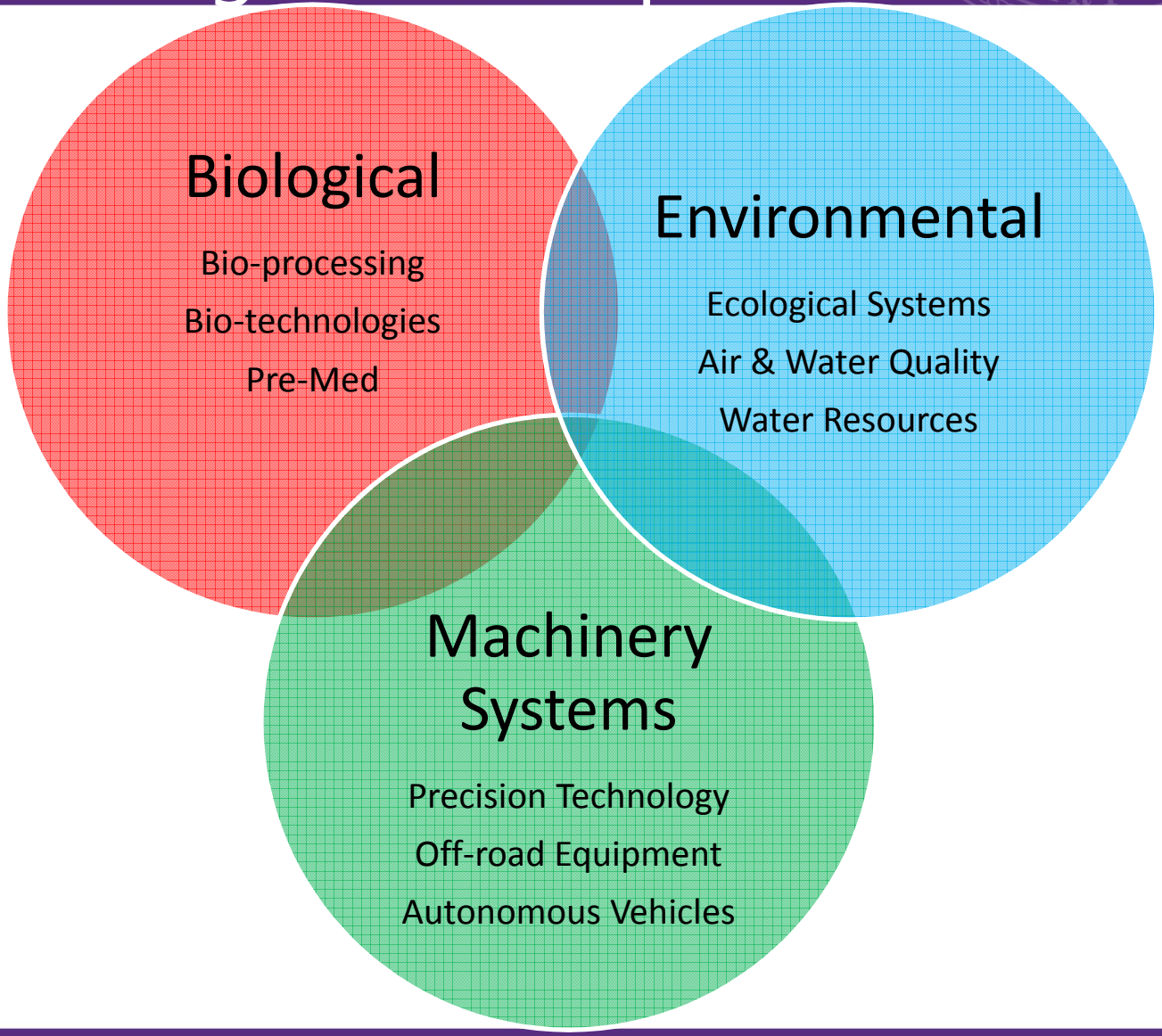
Engineering - Departments

- Architectural Engineering & Construction Science
- Biological & Agricultural Engineering
- Chemical Engineering
- Civil Engineering
- Computing & Information Sciences
- Electrical & Computer Engineering
- Industrial & Manufacturing Systems Engineering
- Mechanical & Nuclear Engineering

Biological and Agricultural Engineering

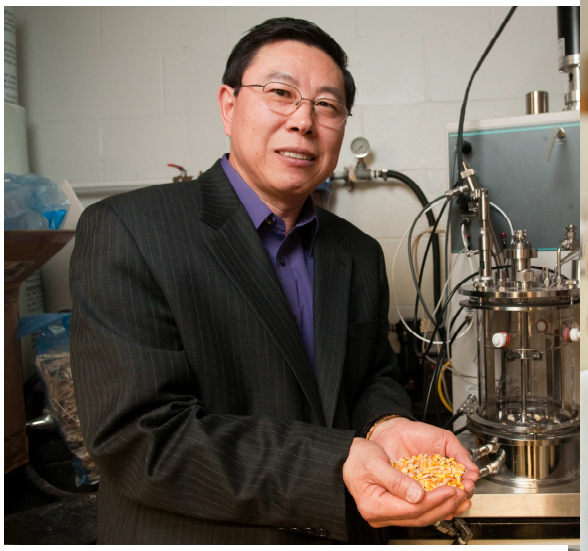
- 142 Biological Systems Engineering/BAE undergraduate students
- 75 Agricultural Technology Management (ATM) students
- 36 Graduate students (19 Ph.D., 15 M.S.)
- 20 Faculty

BSE Undergraduate Options



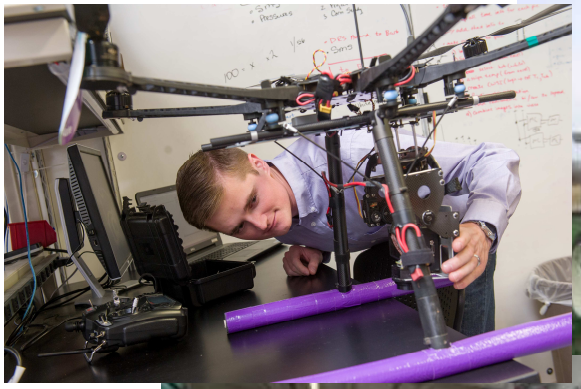
Advanced Biological Products Research

- Recovery and purification of protein and oil products
- Bioengineering for health diagnosis
- Bioconversion of renewable materials into biofuels and chemicals



Terra-Machine & Mechatronics Research

- Automation, mechatronics, and off-road systems
- Precision agriculture, variable rate technologies, machinery automation for UAV
- Sensors, image processing, wireless sensor network.

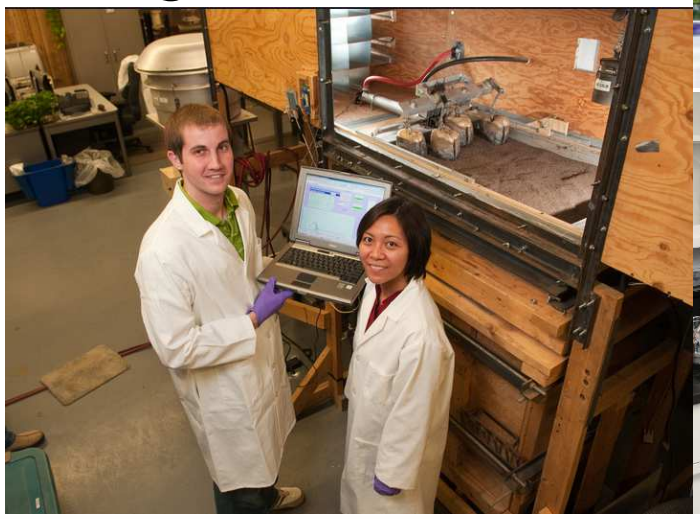


Environmental Sustainability Research

- Water Resources
- Ecological Engineering
- Watershed Management
- Air Quality
- Irrigation







http://www.k-state.edu/tlc/

Passion

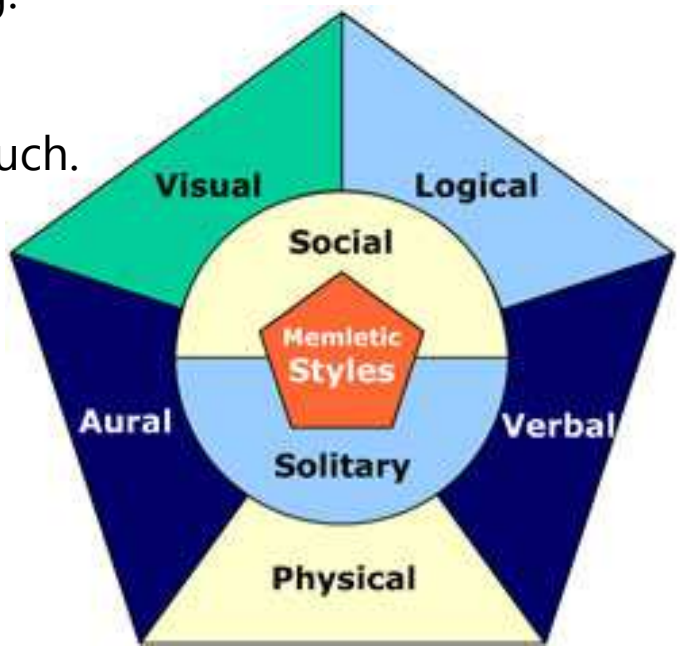
Good teachers have passion

Basic Concepts for Teaching

- Build community of trust and sharing
- Try to hit all learning preferences in each class
- Break up lecture every 15-20 minutes
- Repeat, repeat, repeat

Learning Preferences

- **Visual (spatial):**
  - You prefer using pictures, images, and spatial understanding.
- **Aural (auditory-musical):**
  - You prefer using sound and music.
- **Verbal (linguistic):**
  - You prefer using words, both in speech and writing.
- **Physical (kinesthetic):**
  - You prefer using your body, hands and sense of touch.
- **Logical (mathematical):**
  - You prefer using logic, reasoning and systems.
- **Social (interpersonal):**
  - You prefer to learn in groups or with other people.
- **Solitary (intrapersonal):**
  - You prefer to work alone and use self-study.



Opening Go Around

- Get students focused to learn
- Pose a question prior to the start of class on previous day's lecture, reading material, etc.
- As soon as class begins, have students quickly respond with SHORT answers

Opening Go Around

A teaching tip or technique you use in your classes

(simple phrase answer—NO explanations)

The "Jigsaw" Technique

- Cooperative learning strategy that helps students create their own learning.
- Arrange students in groups.
- Assign each group a different piece of information.
- Have each group become "experts" on their piece of information.
- Have students rearrange into mixed groups that have at least 1 representative of each piece of information and have them "piece" information together.
- Conduct overall class discussion to assist with understanding.

Jigsaw Example

ASABE

STANDARD

American Society of
Agricultural and Biological Engineers

ASABE is a professional and technical organization, of members worldwide, who are dedicated to advancement of engineering applicable to agricultural, food, and biological systems. ASABE Standards are consensus documents developed and adopted by the American Society of Agricultural and Biological Engineers to meet standardization needs within the scope of the Society; principally agricultural field equipment, farmstead equipment, structures, soil and water resource management, turf and landscape equipment, forest engineering, food and process engineering, electric power applications, plant and animal environment, and waste management.

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1. Purpose and scope
2. Cited standards
3. Terraces types
4. Design criteria
5. Planning and layout
6. Construction
7. Operation and maintenance
8. Safety

Turn to Your Partner (TTYP)

- Also known as Think, Pair, Share
- Pose a problem or question
- Give students time to think about it individually
- Ask them to "turn to their partner" and discuss their ideas.
- Have partners share their ideas with the class.
- TTYP is easy to use within a planned lesson, but is also an easy strategy to use for spur-of-the-moment discussions.
- TTYP helps students develop conceptual understanding of a topic, develop the ability to filter information and draw conclusions, and develop the ability to consider other points of view.

http://www.readwritethink.org/professional-development/strategy-guides/using-think-pair-share-30626.html

TTYP Example

What is the value of building community in a classroom?

Examples of methods to build community?

Read and Explain Pairs

- Assign reading to teams (best with teams of 2)
- The procedure the student pairs follow is:
  - Read all the headings to get an overview.
  - Both students silently read the first paragraph. Student A is initially the summarizer and Student Be is the accuracy checker. Students rotate the roles after each paragraph.
  - The **summarizer** summarizes in his or her own words the content of the paragraph to his or her partner.
  - The accuracy checker listens carefully, corrects any misstatements, and adds anything left out. Then he or she tells how the material relates to something they already know.
  - The students move on to the next paragraph, switch roles, and repeat the procedure. They continue until they have read all the assignment. They summarize and agree on the overall meaning of the assigned material.

Read and Explain Pairs Example

IRRIGATION MANAGEMENT SERIES

What is ET?

An Evapotranspiration Primer

Danny H. Rogers
Extension Irrigation Engineer
Biological and Agricultural Engineering

Mahbub Alam
Extension Irrigation Engineer
Southwest Research and Extension Center

Kansas State University
Agricultural Experiment Station and
Cooperative Extension Service
Manhattan, Kansas

The term **Evapotranspiration** (ET) combines the concepts of evaporation (E) from soil and plant surfaces with transpiration (T) from plant leaves to describe the total water escaping from a crop to the air.

The process of water-molecule transfer from any moist surface to the air is called **evaporation**. All surfaces having water in contact with air evaporate water, including lakes, moist soils, and wet plant leaves. Water molecules evaporate as long as the air is not saturated with water vapor.

Transpiration, on the other hand, refers to the water vapor escaping from plant leaves through tiny pores (called stomata) scattered over the leaf surface. It is different from evaporation because stomatal opening or closing occurs in response to environmental conditions. Water moves from moist soil into plant roots, through the plant, and finally out through leaf stomata. The evaporation and transpiration processes are illustrated in Figure 1.

- Evapotranspiration (ET) is the combination of evaporation and transpiration.
- Evaporation is water movement from wet soil and leaf surfaces.
- Transpiration is water movement through the plant.

Figure 1

How does weather affect ET?

Evapotranspiration increases with:

- higher air temperature,
- more solar (light) energy,
- lower humidity, and
- faster wind speed.

Evapotranspiration is often referred to as "crop water use" because the two processes are so closely entwined and difficult to separate.

Both evaporation and transpiration processes are driven by energy from solar radiation, air temperature and wind. Major energy processes are illustrated in Figure 2. There would be more ET occurring on a hot, sunny, windy day then on a cool, cloudy, calm day. The amount of ET that occurs can be measured by installing weighing lysimeters, but is estimated more conveniently and quite accurately by using equations. Climatic data, such as solar radiation, air temperature, relative humidity, and wind run, are used in these equations.

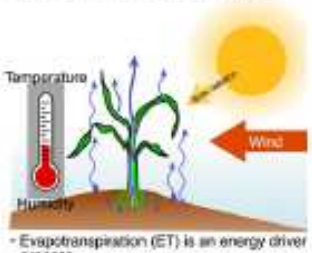
Early in the season, when plants are small, most water loss is from soil evaporation. When plants are large, most ET is from plant transpiration.

Why is crop water use important?

Crop water use determines how much water is needed that may be provided by rain, irrigation, or both. Too little water can reduce crop yield. Too much irrigation can:

- waste water,
- waste energy,
- waste nutrients, and
- unnecessarily deplete the source of water.

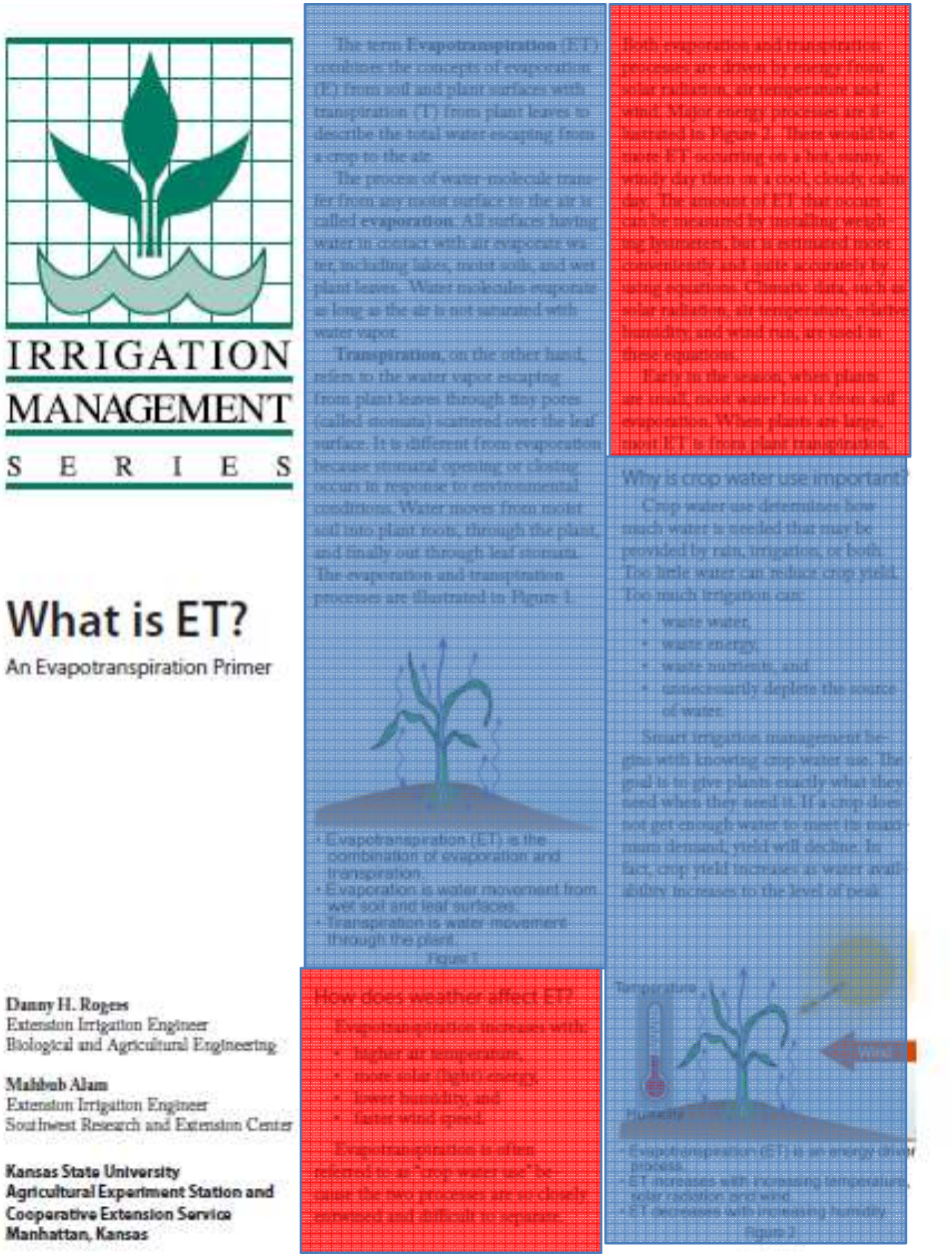
Smart irrigation management begins with knowing crop water use. The goal is to give plants exactly what they need when they need it. If a crop does not get enough water to meet its maximum demand, yield will decline. In fact, crop yield increases as water availability increases to the level of peak.



- Evapotranspiration (ET) is an energy driven process.
- ET increases with increasing temperature, solar radiation and wind.
- ET decreases with increasing humidity.

Figure 2

Read and Explain Pairs Example



- Divide article at the major section headings
- Assign primary reader (summarizer) and accuracy checker
- Read first section
- Summarize and check
- Reverse roles for next section

What other methods do you use to engage students in learning and cover different learning preferences?

Thank You