



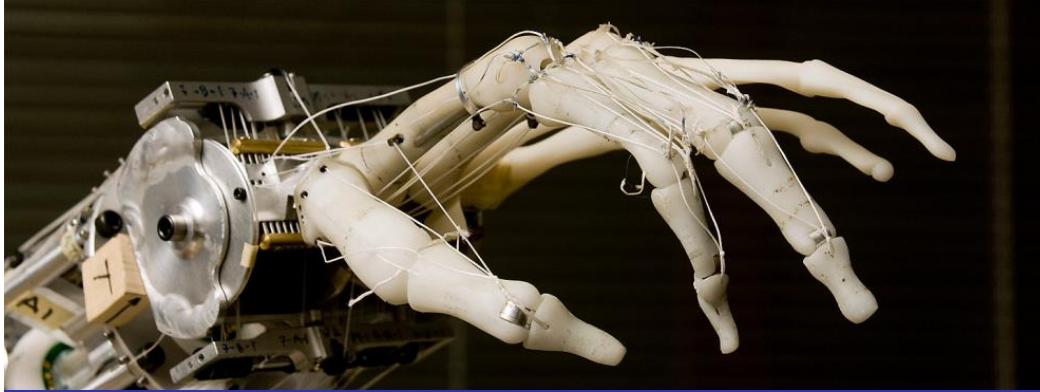
# Department of Mechanical Engineering

Dr. Theodore Bergman

Charles E & Mary Jane Spahr Professor  
Chairman, Department of Mechanical Engineering



# Mechanical Engineering



Biomechanics, Robotics and Control



Materials, Manufacturing



Dynamics, Thermodynamics



Fluid Mechanics



Combustion, Heat Transfer

# Mechanical Engineering

- If something moves, or converts energy from one form to another, a mechanical engineer was probably involved in its design and production
- Mechanical engineers use the principles of *force*, *energy*, and *motion* to produce goods and services for people throughout the world
- Mechanical engineers *design* and *manufacture* mechanical systems as well as thermal devices and processes
- Examples include but not limited to: control systems and engines for automobiles and aircraft, electric power generation plants, medical devices, and consumer products

*Virtually every aspect of life is touched daily by mechanical engineering*

# Mechanical Engineering is *Everywhere*

From your local grocery, to the internet, to the most advanced power systems in the world.

The *broadest* engineering discipline

The *most versatile* engineering discipline

A *pathway degree* to alternative careers  
Leadership in business, medical school, law school, and more

*Now, my personal story. I moved from Connecticut in 2012...*

# My Family

3<sup>rd</sup> generation Kansas farmers  
(few went to college)

Ted Bergman attended:



Son Nate attended:



*BSME, 2013*

# My Wife's Family

Her father attended:



Carnegie Mellon

Wife Tricia attended:



Son Tico attended:



*BSME, 2014*

My family has 8 ME degrees (and one graduate degree in business)

# Tricia's Mechanical Engineering Jobs



**P&G**

**Manufacturer of Consumer Goods**  
Cincinnati, Ohio



**Clean Energy & Advanced Power Systems Research**  
Storrs, Connecticut



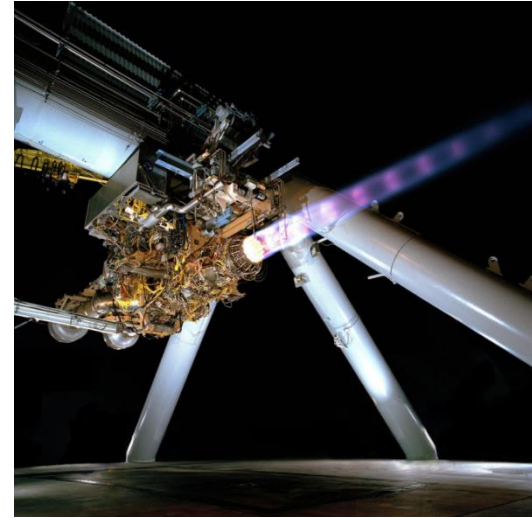
# Nate's Mechanical Engineering Job



## SIEMENS

**Power Distribution**  
Atlanta, Georgia

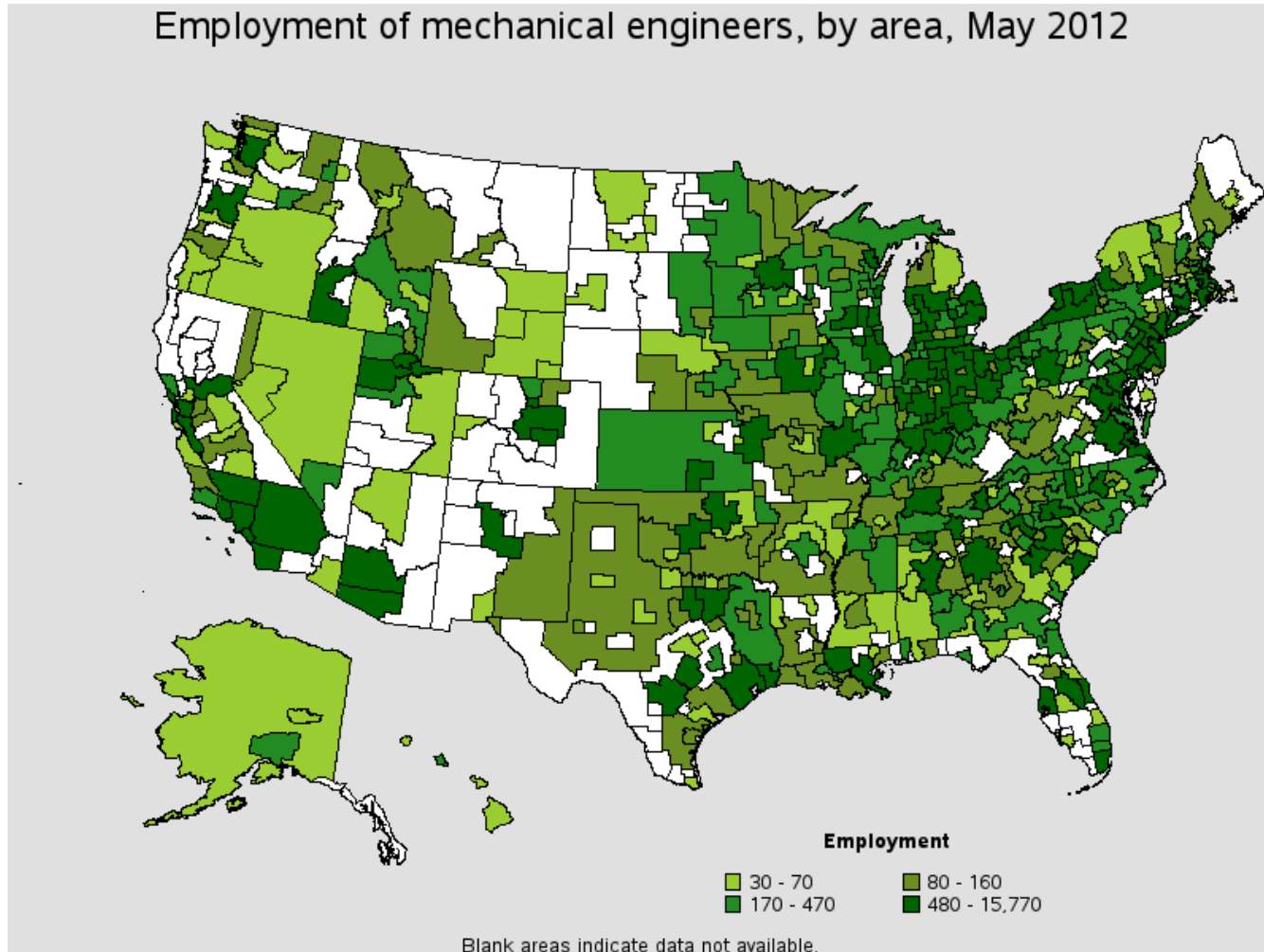
# Tico's Mechanical Engineering Job



**Testing and building advanced jet engines, *The Joint Strike Fighter***  
Middletown, Connecticut



# Where do Mechanical Engineers work?



# KU Mechanical Engineering

## Degrees Offered

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### Bachelor of Science

Biomechanics concentration

Business option

Pre-medical option

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### Master of Science

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### Doctor of Philosophy

19

Professors (5 female professors)

500

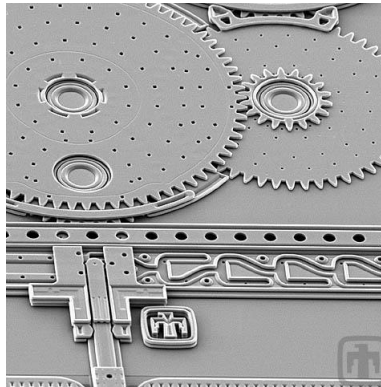
Undergraduate students and 100 graduate students (advised) and growing

80

Undergraduate and 15 graduate degrees are awarded each academic year

# Examples of Required Courses

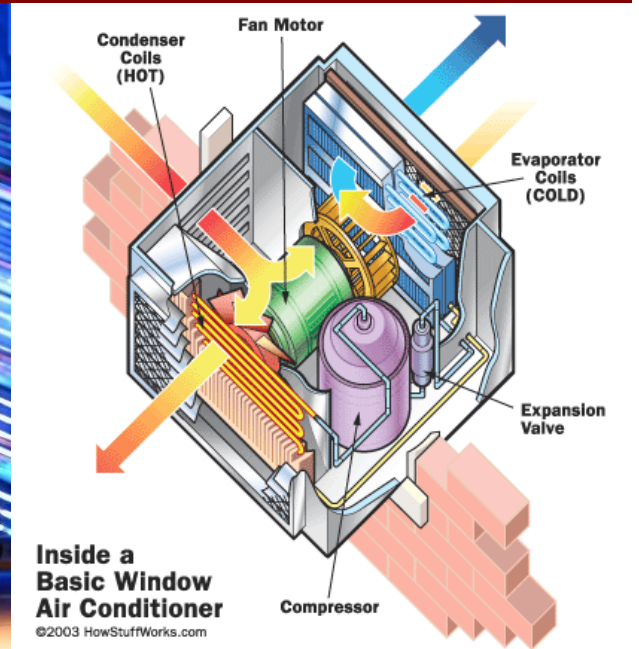
- Statics & Dynamics
- Thermodynamics
- Fluid Mechanics
- Heat Transfer
- Materials Science
- Experimental Methods
- Solid Mechanics



From small...



...to big...



...and everything in-between.

# The Uniqueness of KU



1 of only 62

Members of the American Association of Universities (AAU)  
Flagship university of the state of Kansas



200

Fields of study  
14 Colleges and Schools  
Arts to Engineering; Law to Medical

28,000

Students on five campuses  
*Lawrence, Kansas City, Overland Park, Wichita, Salina*

5

National debate championships  
National basketball titles



# The Uniqueness of Lawrence



## Massachusetts Street

Pedestrian friendly, and home to more than 100 shops, galleries, restaurants, cafes, pubs, live music venues, and much more.

100,000

Lawrence Population

"Among the **"Dozen Most Distinctive Destinations"**  
*National Historic Trust*

"One of the **best lil' College Towns"**  
*Rolling Stone*

"The most vital **music scene** between Chicago and Denver"  
*New York Times*

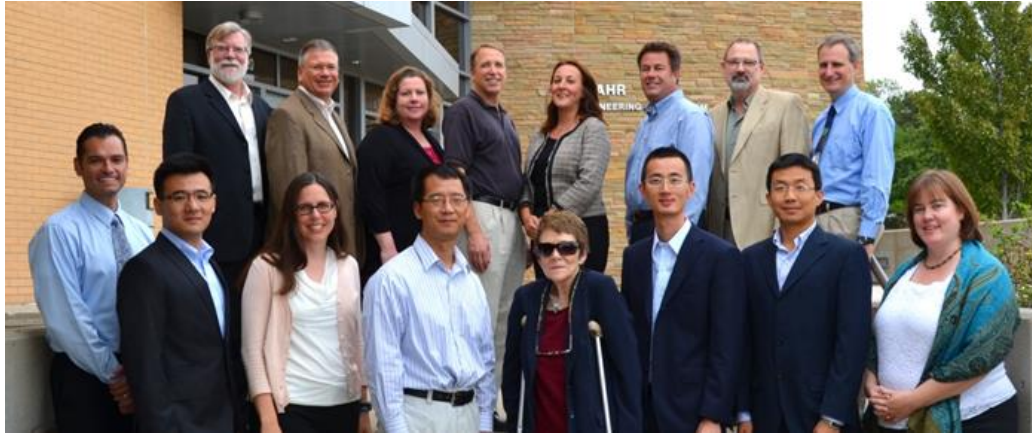
"Home to one of the **best music venues** in the country"  
*Esquire*

"Massachusetts Street **"Top 10 Great Streets"**  
*American Planning Association*

"One of the countries most **bike-friendly** towns"  
*League of American Cyclists*



# KU Mechanical Engineering Faculty



KUME faculty members  
(three are not shown)

15,000

Citations of our publications since 2012\*

16

Editorial and Editorial Board positions held

150

Refereed journal articles published since 2012

13

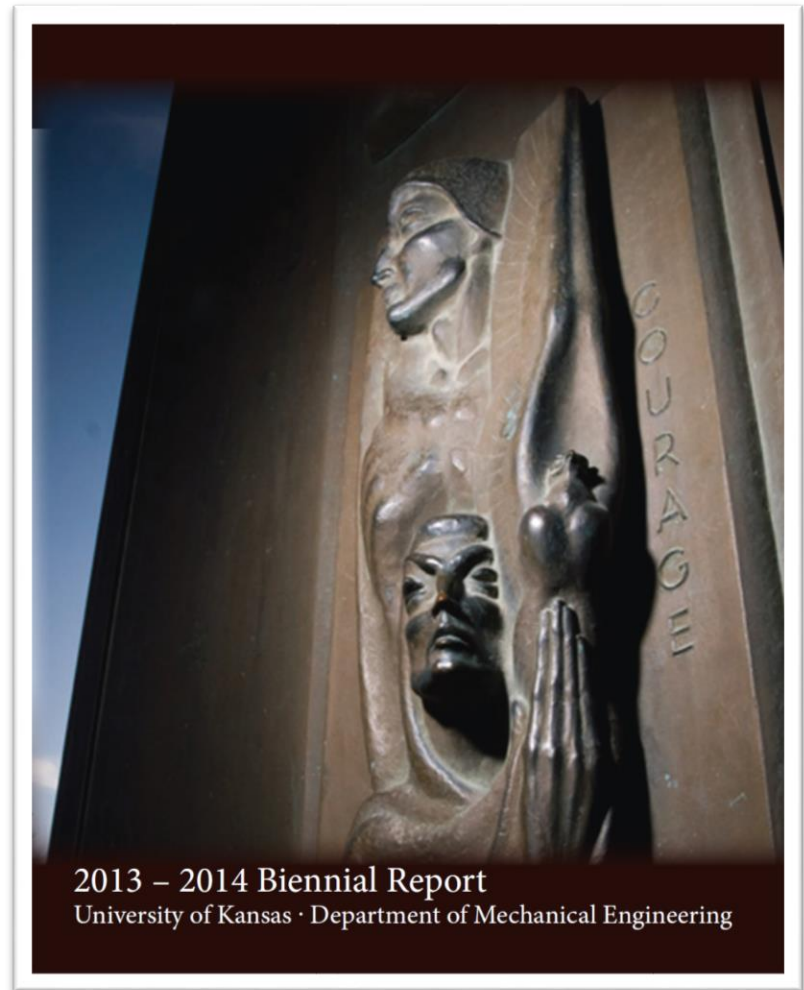
Books (5) and Book Chapters (8) since 2011

*Research focus on energy, sustainability, biomaterials, and bioengineering*

# KU ME Faculty & Student Research

## KU Mechanical Engineering *Biennial Report*

- Profiles of our faculty members
- Journal Articles
- Books and Book Chapters
- Editorial Positions
- Keynote Presentations
- Honors, Awards, Professional Service
- Industry-Sponsored Student Projects
- Special Accolades



# KU ME Opportunities & Experiences

- Build engineering devices your *first semester*
- Broad elective offerings, particularly in *bioengineering*, *energy*, and *sustainability*
- Perform research at an *AAU institution*
- Clubs & Organizations:
  - American Society of Mechanical Engineers (ASME)
  - American Institute of Aeronautics & Astronautics (AIAA)
  - Society of Automotive Engineers (SAE)
  - American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
  - Biomedical Engineering Society (BMES)
- Capstone projects: EcoHawks, Formula SAE, Biomechanics, Industry-sponsored



# Industry-Sponsored Senior Capstone Projects

## Sponsors in Calendar Years 2014-2015



# KU ME Student Achievements



**Jayhawk Motorsports, Formula SAE Team**  
# 1 Lincoln Nationals, 2012 & 2014  
*Designed and built by KU Students*



*SportsCar, 2013*



# KU ME Student Achievements



Hill Engineering Research & Design Center  
Home of EcoHawks  
*Designed and built by KU students*



13 Best Designs of 2013 (Worldwide)  
*Architect, 2013*

# Visits & Events

Office of Admissions

[admissions.ku.edu/visit](https://admissions.ku.edu/visit) • 785-864-3911

KU School of Engineering

[enr.ku.edu/events-camps](https://enr.ku.edu/events-camps) • 785-864-3881

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Learn more online at [me.engr.ku.edu](https://me.engr.ku.edu)

