UNDERGRADUATE RESEARCH AT THE UNIVERSITY OF KENTUCKY

UK is a Research University

a. The 2005 Carnegie Classification categorizes all colleges and universities in the United States that are degree-granting and accredited by an agency recognized by the U.S. Secretary of Education. UK is classified as “RU/VH”. What do you think RU/VH stands for? (“Research University-Very High” research activity.)

b. What does this mean? All faculty at this type of institution are actively engaged in some level of research and scholarly activity. Other schools in this category include the University of North Carolina at Chapel Hill, Ohio State University, Harvard University, and the University of Florida. (Visit www.carnegiefoundation.org/classifications)

c. Number of Higher Education Institutions: 4,495 (as of 2010 survey)

d. Number of RU/VH universities: 96 (~2%, i.e., we’re special!)

Why Is It Advantageous to Attend a Research University?

a. When you buy food, you want to know it’s safe to eat and that someone is watching this carefully, right? Or you want to have some level of guarantee your new car, which you've paid a lot for, will actually work! It seems logical that when you pay for a college education, you want to be sure that someone is watching to make sure the educational information you’re getting is sound and delivered by qualified individuals. Thus, accrediting bodies, such as SACS, were created. Further, The Boyer Commission was created in 1995 under the auspices of the Carnegie Foundation for the Advancement of Teaching. In addition to providing ratings of universities so we can compare them, they published a landmark report titled Reinventing Undergraduate Education: A Blueprint for America’s Research Universities (1998), which outlined the advantages of attending a research university. (Portions of this lesson are excerpted from the Boyer report, http://naples.cc.sunysb.edu/Pres.boyer.nsf).

b. Advantage #1: Research universities possess unparalleled wealth in intellectual power and resources.

c. Advantage #2: The university has the responsibility to provide:
   1. Opportunities to learn through inquiry rather than simple transmission of knowledge.
   2. Training in the skills necessary for oral and written communication at a level that will serve the student both within the university and in postgraduate professional and personal life.
   3. Appreciation of arts, humanities, sciences, and social sciences, and the opportunity to experience them at any intensity and depth the student can accommodate.
   4. Careful and comprehensive preparation for whatever may lie beyond graduation, whether it be graduate school, professional school or first professional position.
5. **Opportunity to work with talented senior researchers** to help and guide the student’s efforts. In a minute, we will talk a program that allows you to become involved in research with UK faculty.

6. **Access to first-class facilities in which to pursue research—**laboratories, libraries, computer systems, etc. *(Here at UK, access to 7 professional schools all on one campus! Rare!)*

7. Many options among fields of study.

8. **Opportunities to interact with people of backgrounds, cultures, and experiences different from the student’s own and with pursuers of knowledge at every level of accomplishment**, from freshman students to senior research faculty.

UK provides all the above. The catch: As adults and life-long learners, it's up to you to take advantage of these opportunities. Find out for yourself!

**Undergraduate Research Opportunities at the University of Kentucky**

a. **The Office of Undergraduate Research** ([www.uky.edu/UGResearch](http://www.uky.edu/UGResearch)) is the starting point for undergraduate students desiring to include mentored research in their undergraduate experience.

   The Office of Undergraduate Research pairs faculty mentors with students to create a formalized, meaningful research experience. Students can interview participating faculty to find the best fit for their interests.

   Research can be in any discipline, including the sciences, humanities, social sciences, and history. If you have a burning question and the desire to find the answer, you are conducting research! Faculty mentors guide you in the proper methods for research and scholarly inquiry.

b. **The Society for the Promotion of Undergraduate Research (SPUR)** is a group of student researchers who promote undergraduate research in collaboration with the Office of Undergraduate Research. SPUR’s goals are:
   - To provide peer support for students as they search for a research mentor and to educate them about research-related academic resources.
   - To organize and promote the "Annual Showcase of Undergraduate Scholars" ([www.uky.edu/UGResearch/showcase.html](http://www.uky.edu/UGResearch/showcase.html));
   - To hold colloquia for undergraduates involved in scholarly research.

c. **Examples of Research Projects in which Students Are Participating or Have Participated**

   **Student:** Tiffany L. Taylor, Anatomy & Neurobiology  
   **Mentor:** Dr. Luke Bradley  
   **Research Title:** Therapeutics for the Treatment of Neurodegenerative Disorders  

   Tiffany has been evaluating the molecular and cellular properties of the synthetic dopamine neuron stimulating peptides (DNSPs). Her research provides the basis for future evaluation and development of the DNSPs as potential therapeutics for the treatment of neurodegenerative disorders, including Parkinson’s disease.
**Student:** Jessica Anderson, International Studies/Political Science  
**Mentor:** Dr. Daniel Morey  
**Research Title:** From Normalization to Condemnation: Changing Opinions on the 1994 Jordanian Israeli Peace Treaty  
Jessica’s research focuses on the history of the 1944 Jordanian-Israeli Peace treaty and its impact shaping actions between Israel and Jordan as well as Israel and other Arab States. She is studying abroad in Jordan for an intensive Arabic language program at Yarmouk University. While abroad she is exploring the degree to which the 1994 Peace Treaty has become a factor in Jordan's modern political discourse. Her methods center on evaluating Jordanian media coverage of political issues and determining whether the Peace Treaty continues to be called into question in political reform.

**Student:** Ashlei Hardin, Nursing  
**Mentor:** Jennifer Hatcher  
**Research Title:** Fear as a Barrier in Mammography Screenings  
Ashlei is interested in understanding more about fear as a barrier to mammography and suggesting ways to help women deal with this fear so they can receive timely mammograms. During her research, she is exploring the concept of fear among African-American women as it relates to mammography. She is reading transcripts previously gathered and identifying themes/factors related to women’s fear of mammography and medical intervention. She is also conducting a literature review of the most current research related to fear, mammography, and African-American women.

**Student:** Travis Bridges, Biochemistry  
**Mentor:** Dr. Matthew Gentry  
**Research Title:** Starch Phosphate: A Means to Manipulate Biofuel Production  
Corn, rice, potatoes, and wheat are raised and harvested for their starch-storing organs. These crops are used largely as food, but also as first-generation biofuels. In addition, starch plays a central role in the production of molecular hydrogen. Thus, starch is a central component of both first-generation biofuels and future efforts focused on hydrogen production. Travis is cloning two of the newly identified algal genes, purifying the proteins, and characterizing the enzymology of each. Completion of this work will build a foundational knowledge of these enzymes and lead to a means of modulating energy storage in algae.

**d. What Should You Do Next?** The Office of Undergraduate Research facilitates involvement for ALL students (freshman, sophomore, juniors and seniors) in all of the above events related to undergraduate research. For more information, visit [http://www.uky.edu/UGResearch](http://www.uky.edu/UGResearch), and/or contact Evie Russell (egruss0@email.uky.edu), Student Support and Activities Coordinator.