

**Dr. Kenneth Mark Crawford**  
**Department of Biology**  
**Western Kentucky University**  
**Bowling Green, KY 42101-1080**  
 kenneth.crawford@wku.edu

## **EDUCATION:**

Ph.D. 1988. University of Michigan, Ann Arbor. Department of Biology.

M.A. 1980. State University of New York College at Buffalo. Department of Biology.

B.A. 1978. State University of New York College at Buffalo. Cum Laude. Biology.

## **PROFESSIONAL EXPERIENCE:**

2013- Associate Dean, Ogden College of Science and Engineering, Western Kentucky University

- Director Health Professions Advisement Center
- Chair Ogden College Undergraduate Curriculum Committee
- Chair Ogden College Faculty Awards Committee
- Chair Ogden College Student Awards Committee
- University Academic Program Review Committee
- Oversee Recruitment, Outreach, Student Advising
- Adjudicate Student Appeals
- Credential Part-time Faculty

2013 Acting Department Head, Architectural and Manufacturing Sciences, WKU

2008-2009 Interim Department Head, Department of Biology, WKU.

2002- Associate Professor, Department of Biology, Western Kentucky University.

2000- Chief, Pre-Health Professions Advisor, Ogden College of Science and Engineering.

1996-2002 Assistant Professor, Department of Biology, Western Kentucky University.

1996 Instructor, Department of Biology, University of Michigan.

1992-96 Research Investigator (junior research faculty). Department of Anatomy and Cell Biology, University of Michigan, School of Medicine.

1987-92 Post-Doctoral Research Fellow. In the laboratory of Dr. Stephen A. Ernst, Department of Anatomy and Cell Biology, University of Michigan.

## **TEACHING EXPERIENCE:**

**Western Kentucky University.** Department of Biology. Undergraduate: Human Anatomy and Physiology, Human Anatomy and Physiology Laboratory, Biotechnology Core II (Metabolism), General Zoology, Basic Pathology, Animal Physiology, Animal Physiology Laboratory, Histology, Biology of Aging, Biodiversity and Conservation in the Caribbean. Graduate: Physiological Ecology, and Graduate Seminar.

**University of Michigan, Ann Arbor.** Department of Biology. Instructor: Animal Physiology, and Animal Physiology Laboratory. Teaching Assistant: Introductory Biology, Animal Physiology, Endocrinology, Genetics, Cell and Molecular Biology.

## **GRANT SUPPORT AND AWARDS:**

- 02-15 L.Y. Lancaster Professorship. Western Kentucky University. (\$3,000 annual research stipend)
- 2013 FUSE Award. With Brandon Farmer. WKU (\$4,500).
- 2011 Ogden College of Science and Engineering, Faculty Award for Student Advisement
- 2009 Provost's Initiatives for Excellence (PIE). Biology Refrigerator Replacement. \$2976.
- 2002 Western Kentucky University, University Faculty Award for Student Advisement
- 2002 Ogden College of Science and Engineering, Faculty Award for Student Advisement
- 2002 Summer Research Fellowship. Western Kentucky University. Sodium Pump Gene Expression in Bovine Corneal Endothelial Cells. (\$5,000)
- 2001 Kentucky Biomedical Research Infrastructure Network. (PI, Dr. Cheryl Davis, with Dr. S. Jacobshagen, Dr. J. Bilotta and Dr. C. Rinehart). (\$150,000 for 3 years)
- 2000 Summer Research Fellowship. Western Kentucky University. Up-regulation of Na Pumps in the Corneal Endothelium. (\$5,000)
- 1998 Fight for Sight. Grant-in-Aid. Expression of Na<sup>+</sup>/K<sup>+</sup>-ATPase in Bovine Corneal Endothelial Cells. (\$10,000)
- 1998 Summer Research Fellowship. WKU. The Effect of Neurohormonal Stimulation on the Surface Expression and Activity of Na<sup>+</sup>/K<sup>+</sup>-ATPase in Bovine Corneal Endothelial Cells. (\$5,000)
- 1997 Presidents Special Grant Fund. WKU. The Development of Digital Data Acquisition Systems in Undergraduate Physiology and Advanced Anatomy and Physiology Laboratories. (\$3,000)
- 1997 National Science Foundation. Instrumentation and Laboratory Improvement Grant.

- Development of a Cell Culture Facility. Co-PI with L. Rhoads, C. Davis, C. Rinehart, and S. Jacobshagan. (\$27,873)
- 1996 Junior Faculty Research Grant. Western Kentucky University. (\$4,000)
- 1989 National Institutes of Health, Post-doctoral fellowship. National Institute of Diabetes and Digestive and Kidney Diseases (DK-08401)

#### **PEER REVIEWED PUBLICATIONS:**

**Crawford, K.M.**, J.R. Spotila and E.A. Standora. 1983. Operative environmental temperatures and basking behavior of the turtle *Pseudemys scripta*. *Ecology*. 64: 989-999.

Spotila, J.R., R.E. Foley, J.P. Schubauer, R.D. Semlitsch, **K.M. Crawford**, E.A. Standora and J.W. Gibbons. 1984. Behavioral thermoregulation of turtles, *Pseudemys scripta* in a nuclear reactor cooling reservoir. *Herpetologica*. 40: 299-308.

Olson, J.M. and **K.M. Crawford**. 1989. The effect of seasonal acclimatization on the buffering capacity and lactate dehydrogenase activity in tissues of the freshwater turtle, *Chrysemys picta marginata*. *J. Exp. Biol.* 145: 471-476.

**Crawford, K.M.** 1991. The effect of temperature and seasonal acclimatization on urine production and glomerular filtration rates of painted turtles, *Chrysemys picta*. *Comp. Biochem. Physiol.* 99A: 375-380.

**Crawford, K.M.**, E.L. Steunkel, and S. A. Ernst. 1991. Agonist-induced frequency modulation of  $Ca^{2+}$  oscillations in salt gland secretory cells. *Am. J. Physiol. (Cell Physiol.)* 261: C177-C184.

**Crawford, K.M.** 1991. The hibernial environment of the painted turtle: Temperature, dissolved oxygen, and cues for emergence. *Can. J. Zool.* 69: 2493-2498.

**Crawford, K.M.**, D.K. MacCallum, and S.A. Ernst. 1992. Histamine-H1-receptor mediated  $Ca^{2+}$  signaling in cultured bovine corneal endothelial cells. *Invest. Ophthalmol. Vis. Sci.* 33: 3041-3049.

**Crawford, K.M.** 1993. Patterns of energy substrate utilization in overwintering painted turtles, *Chrysemys picta*. *Comp. Biochem. Physiol.* 109A: 495-502.

**Crawford, K.M.**, D.K. MacCallum, and S.A. Ernst. 1993. Agonist -induced  $Ca^{2+}$  mobilization in cultured bovine and human corneal endothelial cells. *Curr. Eye Res.* 12: 303-311.

Ernst, S.A., **K.M. Crawford**, M. Post, and J.A. Cohn. 1994. Salt stress increases the abundance and glycosylation of CFTR localized at apical surfaces of salt gland secretory cells. *Am. J. Physiol. (Cell Physiol.)* 267: C990-C1101.

**Crawford, K.M.**, S.A. Ernst, R.F. Meyer, and D.K. MacCallum. 1995. Na<sup>+</sup>/K<sup>+</sup> -ATPase pump sites in cultured bovine corneal endothelium of varying cell density at confluence. Invest. Ophthalmol. Vis. Sci. 36: 1317-1326.

## **NON-PEER REVIEWED PUBLICATIONS**

**Crawford, K.M.** 1997. Animal Physiology: A Laboratory Manual. Professors Publishing. Bowling Green, KY.

**Crawford, K.M.** 1998. The Frogs and Toads of Kentucky.  
<http://bioweb.wku.edu/froglogger>.

**Crawford, K.M.** 1998. The Pre-Professional Students Advisement Guides.  
<http://www.wku.edu/wkuhpa/>

**Crawford, K.M.** and A. Meier. 2000. The Salamanders of Kentucky.  
<http://biodiversity.wku.edu/salamanders>

**Crawford, K.M.** 2005. University of Louisville. In: Premedical Advisor's Reference Manual. 8<sup>th</sup> Ed. 2005. NAAHP Publications.

**Crawford, K.M.** 2005. Pikeville College School of Osteopathic Medicine. In: Premedical Advisor's Reference Manual. 8<sup>th</sup> Ed. 2005. NAAHP Publications.

**Crawford, K.M.** 2008. University of Louisville. In: Premedical Advisor's Reference Manual. 9<sup>th</sup> Ed. 2005. NAAHP Publications.

**Crawford, K.M.** 2008. Pikeville College School of Osteopathic Medicine. In: Premedical Advisor's Reference Manual. 9<sup>th</sup> Ed. 2008. NAAHP Publications.

**Crawford, K.M.** 2012. University of Pikeville, Kentucky College of Osteopathic Medicine. In: Premedical Advisor's Reference Manual. 10<sup>th</sup> Ed. 2012. NAAHP Publications.

**Crawford, K.M.** 2014. What do I do if I don't get in? Scalpel. Fall 2014 p.6-9.

**Crawford, K.M.** 2016. Convention Highlights, AED 2016, Houston. Scalpel. Spring 2016.

## **PUBLISHED ABSTRACTS:**

**Crawford, K.M.** 1984. Utilization of energy substrate during overwintering in the painted turtle. Amer. Zool. 24: 137A.

**Crawford, K.M.** and J.M. Olson. 1985. Buffering capacities and LDH activities of heart and skeletal muscle of a vertebrate facultative anaerobe. Amer. Zool. 25: 49A.

**Crawford, K.M.** 1987. Water balance of winter and summer acclimatized painted turtles. Amer. Zool. 27: 5A.

**Crawford, K.M.**, E.L. Stuenkel, M. Urich, and S. A. Ernst. 1990. Regulation of cytosolic free calcium in Fura-2 loaded single avian salt gland cells. *FASEB J.* 4: A727.

**Crawford, K.M.**, E.L. Stuenkel, M. Urich, and S. A. Ernst. 1990. Modulation of carbachol induced oscillations in  $[Ca^{2+}]_i$  in single avian salt gland cells by phorbol esters. *J. Cell Biol.* 111: 466a.

**Crawford, K.M.**, D.K. MacCallum, and S.A. Ernst. 1992. Histamine mobilizes  $Ca^{2+}$  in cultured bovine corneal endothelial cells. *Invest. Ophthalmol. Vis. Sci.* 33(suppl): 924.

**Crawford, K.M.**, D.K. MacCallum, and S.A. Ernst. 1993. Agonist-induced inositol phosphate metabolism and  $Ca^{2+}$  mobilization in cultured corneal endothelial cells. *Invest. Ophthalmol. Vis. Sci.* 34(suppl): 1406.

MacCallum, D.K., **K.M. Crawford**, S.A. Ernst, and R.F. Meyer. 1993. A study of Na pump sites in a cell culture model of corneal endothelium. *Invest. Ophthalmol. Vis. Sci.* 34(suppl): 1403.

Ernst, S.A., J.A. Cohn, M.A. Post, and **K.M. Crawford**. 1993. Osmotic stress enhances the expression of a CFTR homologue localized at the apical membrane of avian salt gland secretory cells. *Pediat. Pulmon. (suppl. 9)*: 209.

**Crawford, K.M.**, V.J. Nath, N.L. Badyna, D.K. MacCallum, and S.A. Ernst. 1993. Endothelin-1 localization, receptor binding, and signal transduction in cultured bovine corneal endothelial cells. *Mol. Biol. Cell.* 4:122a.

Ernst, S.A., **K.M. Crawford**, M.A. Post, A.M. Kaz, and J.A. Cohn. 1993. Osmotic stress regulates the abundance and processing of CFTR in avian salt gland. *Mol. Biol. Cell.* 4: 427a.

MacCallum, D.K., **K.M. Crawford**, S.A. Ernst, and R.F. Meyer. 1994. Actin microfilament arrangement in confluent bovine corneal endothelial cultures and cytochalasin-induced shape change. *Invest. Ophthalmol. Vis. Res.* 35:1598.

**Crawford, K.M.**, V.J. Nath, D.K. MacCallum, and S.A. Ernst. 1994. Receptor binding, signal transduction and immunofluorescent localization of endothelin-1 in cultured bovine corneal endothelial cells. *Invest. Ophthalmol. Vis. Res.* 35: 1602.

MacCallum, D.K., **K.M. Crawford**, S.A. Ernst, and R.F. Meyer. 1994. Reversible cytochalasin-induced shape and junctional architectural change in confluent bovine corneal endothelial cell cultures. *Mol. Biol. Cell.* 5:83a.

**Crawford, K.M.**, D.K. MacCallum, and S.A. Ernst. 1995. Cell volume changes elicit  $Na^{+}/K^{+}$ -ATPase recruitment and/or activation in cultured bovine corneal endothelial cells. *Invest. Ophthalmol. Vis. Sci.* 36:S300.

Young, M.S., Gilmont, R. **Crawford, K.M.** and R. Rees. 1995. Demonstration of a calcium flux in vascular endothelial cells mediated by rat or human reperfusate. *Trans. Moses Gunn.* 95:11.

**Crawford, K.M.** and L.A. Dossett. 1999. The effect of cryopreservation and subculture on the expression of the sodium pump in cultured bovine corneal endothelial cells. Invest. Ophthalmol. Vis. Sci. 40:S629.

**Crawford, K.M.** 2001. Up-regulation of sodium (Na) pump surface expression in bovine corneal endothelial cells. Invest. Ophthalmol. Vis. Sci. 42:S275.

**PRESENTATIONS (2001 - present):** \* graduate student; undergraduate students

Alderdice, B., D.A. Edwards, S. Titsworth, L. Basham, and K.M. Crawford. 2001. Overwintering of the red-eared slider, *Trachemys scripta* Sigma Xi. WKU.

Lodmell, D., B. Lee, C. Johnson, and K.M. Crawford. 2001. Body Composition of developing catalpa sphinx caterpillars. Sigma Xi. (winner of best student paper award) WKU.

**Crawford, K.M.** 2001. Up-regulation of sodium (Na) pump surface expression in bovine corneal endothelial cells. ARVO. Ft. Lauderdale, FL.

Robinson, R.D. and K.M. Crawford. 2001. Decline of Na pump expression with cell division in cultured bovine corneal endothelial cells. Kentucky Academy of Science. Murfreesboro, TN.

Huber, C., D. Hunsaker and K.M. Crawford. 2002. The correlation between heart disease and body mass index. Sigma Xi Annual Student Research Conference. WKU.

Robinson, R.D. and K.M. Crawford. 2002. Decline of sodium pump expression with cell division in cultured bovine corneal endothelial cells. Sigma Xi Annual Student Research Conference. WKU.

Kitsteiner, J. and K.M. Crawford. 2002. Structure and function of the microvilli of corneal endothelial cells. Kentucky Academy of Science. Highland Heights, KY (1<sup>st</sup> Place, Best Undergraduate Paper at the Conference).

Aakula, S\*. and **K.M. Crawford.** 2003. Expression and sequence of the alpha-1 subunit of Na/K-ATPase from bovine corneal endothelial cells. Sigma Xi Annual Student Research Conference. WKU.

Achanta, V\*. and **K.M. Crawford.** 2003. Effect of endothelin-1 on the expression of p27 in bovine corneal endothelial cells. Sigma Xi Annual Student Research Conference. WKU. (honorable mention, best grad student presentation)

Kitsteiner, J. and K.M. Crawford. 2003. Structure and function of the microvilli of corneal endothelial cells. Sigma Xi Annual Student Research Conference. WKU. (1<sup>st</sup> Place, Best Undergraduate Paper at the Conference).

See, W. and **K.M. Crawford.** 2003. Quantification of preproendothelin-1 mRNA in bovine corneal endothelial cells. Sigma Xi Annual Student Research Conference. WKU.

**Crawford, K.M.** 2003. What exactly do advisors do? Southern Association for Advisors of the Health Professions (SAAHP). Lexington, KY.

**Crawford, K.M., J. Kitsteiner and S. Francis.** 2003. Structure and function of the microvilli of corneal endothelial cells. ARVO. Ft. Lauderdale, FL.

Abell, A. and **K.M. Crawford.** 2004. Wound Repair in bovine corneal endothelial cells under oxidative conditions. Sigma Xi Annual Student Research Conference. WKU.

Pabbathi, M.R\*. and **K.M. Crawford.** 2004. Regulation of sodium, potassium ATPase surface expression in bovine corneal endothelial cells. Sigma Xi Annual Student Research Conference. WKU.

**Crawford, K.M. and V. L.S. Achanta\*.** 2004. The effect of endothelin-1 on p27 expression, proliferation and wound healing of bovine corneal endothelial cells. ARVO. Fort Lauderdale, FL.

Morris, A. and **K.M. Crawford.** 2004. The Effect of Endothelin-1 on Cell Proliferation and Wound Healing of Bovine Corneal Endothelial Cells. Kentucky Academy of Science (KAS). Murray, KY.

Aakula, S\*. and **K.M. Crawford.** 2004. Up-regulation of the Sodium Pump in Response to Osmotic Stress in Bovine Corneal Endothelial Cells. Kentucky Academy of Science (KAS). Murray, KY.

**Crawford, K.M.** 2004. Frogs of Kentucky. Jefferson County Public Schools Center for Environmental Education. February 24, 2004. Louisville, KY.

Ocker, A. V. Cullen and **K.M. Crawford.** 2006. The Effect of Endothelin-1 on Wound Healing of Bovine Corneal Endothelial Cells. Sigma Xi Student Research Conference. April 1, 2006. WKU, Bowling Green, KY.

Kirui, J\*. and **K.M. Crawford.** 2006. Endothelin-1 Suppresses p27 Expression in Bovine Corneal Endothelial Cells. Sigma Xi Student Research Conference. April 1, 2006. WKU, Bowling Green, KY.

Dao, A. J. Lutz, and **K.M. Crawford.** 2008. The Effect Of Endothelin-1 and Fluorouracil On Wound Healing Of Bovine Corneal Endothelial Cells. Sigma Xi Student Research Conference April 12, 2008. WKU. Bowling Green, KY

Bollu, L\*. and **K.M. Crawford.** 2008. Regulation of Cell proliferation by Endothelin-1 in Bovine Corneal Endothelial Cells. Kentucky Academy of Science. Lexington, KY. Nov. 1, 2008

**Crawford, K.M.** and L.R. Bollu\*. 2009. The Effect of Endothelin-1 on the Expression of the Cyclin Dependent Kinase Inhibitors p21 and p27 in Bovine Corneal Endothelial Cells.

Association for Research in Vision and Ophthalmology. Fort Lauderdale, FL. May 4, 2009.

Frazier, L., Jatczak, J. and K.M. Crawford. 2009. The Effect of Endothelin-1 and 5-Fluorouracil on Wound Healing of Corneal Endothelial Cells. Kentucky Academy of Science. Nov. 14, 2009. Northern Kentucky University.

Huffman, J. and K.M. Crawford. 2009. Endothelin-1 Reduces Expression of the Cyclin Dependent Kinase Inhibitor p27kip1 in Bovine Corneal Endothelial Cells. Kentucky Academy of Science. Nov. 14, 2009. Northern Kentucky University.

Jatczak, J. and L. Frazier. 2010. The Role of Cell Proliferation and Cell Migration in Corneal Endothelial Wound Healing. Sigma Xi Student Research Conference February 27, 2010. WKU. Bowling Green, KY.

Huffman, J. 2010. The Effect of Endothelin-1 on the Expression of Cyclin Dependent Kinase Inhibitors in Bovine Corneal Endothelial Cells. Sigma Xi Student Research Conference February 27, 2010. WKU. Bowling Green, KY.

Frazier, L. and K.M. Crawford. 2012. Endothelin-1 stimulates cell migration in bovine corneal endothelial cells. WKU Student Research Conference. March 24, 2012. WKU. Bowling Green, KY.

Farmer, B., and A. Bethi\*. 2013. Endothelin-1 induces phosphorylation of ERK 1/2 in bovine corneal endothelial cells. WKU Student Research Conference. March 23, 2013. WKU. Bowling Green, KY.

Farmer, B. and K.M. Crawford. 2013. Endothelin-1 induces phosphorylation of ERK 1/2 in bovine corneal endothelial cells. Kentucky Academy of Science. Nov. 9, 2013. Morehead, KY.

Farmer, B., L. Frazier, A. Bethi\* and K.M. Crawford. 2014. Endothelin-1 induces phosphorylation of ERK 1/2 and enhances cell migration in bovine corneal endothelial cells. Association for Research in Vision and Ophthalmology. Orlando, FL. May 5, 2014.

Farmer, B. and K.M. Crawford. 2015. Endothelin-1 Promotes Bovine Corneal Endothelial Cell Proliferation Via A Mapk Pathway: Implications For Global Keratopathy. WKU Student Research Conference. March 28, 2015. WKU. Bowling Green, KY.

## **SERVICE:**

### **Departmental-**

- Recruitment/ Public Relations Committee Chair (1998-2012)
- Foundation/Scholarship Committee Chair (1998-2012)
- Functional Morphologist Search Committee (2004)
- Biology Instructor Search –WKU Glasgow (2008)
- Biology Department Head Search Committee (2008-2009)
- Biotechnologist (Owensboro Campus) Search Committee (2009)
- Physiologist/Endocrinologist Search Committee (2011)



- Advising and Student Development Committee, Chair (2005-2008)
- Group Advising Committee (2009-2013)

Master's Committees Chaired:

Venkata Lakshmi Achanta  
 Madhu Reddy Pabbathi  
 Vishnukant Joshi  
 Srikanth Aakula, (**graduated 2004**)  
 Rebecca Roberson, (**graduated 2003**)  
 Joseph Kirui, (**graduated 2007**)  
 Jonathan Walters, (**graduated 2005**)  
 Salima Waheed  
 Lakshmi Bollu, (**graduated 2009**)  
 Tangie Kelsey, (**graduated 2009**)  
 Tabatha Bowlin, (**graduated 2009**)  
 Ashley Young, (**graduated 2011**)  
 Akhila Bethi, (**graduated 2012**)  
 Martha Tudor, (**graduated 2013**)  
 Jared Mink  
 Sarah Tomlin

Master's Committees (last 10 years)

Jay Swann, Dr. Richard Bowker, Chairperson  
 Tina Kelley, Dr. Bowker, chairperson (**graduated 2008**)  
 Vipula Petluru, Dr. Davis, Chairperson  
 Chad Groce, Dr. Davis, Chairperson (**graduated 2008**)  
 Carly Sinderbrand, Dr. Schulte, Chair (**graduated 2011**)  
 Kayla Pittman, Dr. Davis, Chair

## Ogden College

Liaison to University of Kentucky Medical School and Medical Center, Open a four year medical school in Bowling Green

Pre-professional Advisement Committee (1998-present), Chair (2000-present)

**I currently have 52 advisees**

Chair, Computer Science Chair Search Committee (2014)

Ogden Research Scholars Committee (2001-present)

L.Y. Lancaster Professor (2000-2015)

Director of the Biotechnology Center (2010-2012)

Biophysics Advisory Committee (1997-present)

## University

Co-Chair WKU United Way Campaign (2016)

SACS COC Accreditation Reaffirmation Committee (2013-2015)

Faculty Advisor to the Kentucky Gamma Chapter of Alpha Epsilon Delta (AED), the pre-professional honor society (2000-present)

At-Large representative of Ogden College to the University Senate (2000-2002)

Faculty Scholarship Council (1999-2003)

Undergraduate Gerontology Minor Committee (2000-2004)

Honor's College Thesis Committees (last 5 years)

Brandon Farmer

Leah Frazier

Dillon Pender

Charles Vittitow

## **Professional Service**

Alpha Epsilon Delta- The pre-health professions honor society

National Board of Directors: Vice President. 2013-2016.

Southeast Association of Advisors of the Health Professions (SAAHP)

Governing Board 2007-2010.

Treasurer 2011-present.

Kentucky Academy of Sciences.

Treasurer: 2001- 2013

Secretary: Biochemistry and Physiology Section, 1998

Chairperson: Biochemistry and Physiology Section, 1999

Chair, Local Arrangements Committee; Annual Meeting 2003

Chair, Local Arrangements Committee; Annual Meeting 2010

Member, Centennial Meeting Planning Committee 2014

Kentucky Council on Post-Secondary Education Professional Learning Community

Technical Editor: Praxis II Biology Content Knowledge. Wiley Publishing. 2011.

Technical Editor: CliffsNotes AP Biology, 4<sup>th</sup> Ed. Wiley Publishing. 2012

Ad-hoc Reviewer:

American Journal of Physiology (Cell, Regulatory/Integrative)

Investigative Ophthalmology and Visual Science

Experimental Eye Research

## **SOCIETY MEMBERSHIPS**

Association for Research in Vision and Ophthalmology (ARVO)

National Association of Advisors for the Health Professions (NAAHP)

Southeastern Association of Advisors for the Health Professions (SAAHP)

Kentucky Academy of Sciences (KAS)