

BRAIN WAVES

Volume 1, Issue 5

August 1, 2004

Notes from the Chairman

WELCOME IBS STUDENTS – TO A CHALLENGING PROFESSION

With the coming Fall Semester, we welcome six new graduate students from the IBS Program into the department. Our new students are:

- Theresa Currier-Thomas
- Laurie Davis
- Kevin Hascup
- Sarah Martin
- Lamin Mbye
- Yiqin Xiong

They will join the 19 other graduate students currently in our program, and the scores of previous students who have successfully earned their degrees and have moved on to the next stages of their careers.

Graduate and Postdoctoral training lies at the core of our profession. For faculty, the commitment to training the next generation of scientists and teachers is vital – and requires our best

efforts. For students, the path to success is difficult and most challenging. Unfortunately, some will fall by the wayside. For to be a student is to simultaneously live in two worlds; it is both the best of times and the worst of times!

The best of times are many, including youth, intellectual freedom and opportunity. The freedom to think and the opportunity to explore are essential for scientific creativity. These educational principles must be protected and remain an integral component of our training program. The graduate and post-doctoral years of study are often the most creative period of one's life. Many of the most important breakthroughs in science have been made by young investigators. Jim Watson was a postdoctoral fellow when he co-discovered the paired helical structure of DNA. Jonas Salk was 33 years old when began his seminal research that led to the development of polio vaccine.

And as all who have survived

their student days know, there are the occasional worst of times. Courses can be tedious and exams unfair. Months of research with all of the accompanying hard work can end in a failed experiment. Critics abound and the criticism of one's research can be intense. The anonymous reviewers of manuscripts and grant applications can assume the form of tormentors, raising patently unfair criticisms.

To survive and succeed in our profession, one has to possess an overriding love for learning and a strong work ethic. Integrity, ingenuity, insight and persistence are essential for success. The successes in research and in teaching should be fully enjoyed and appreciated. The vexations have to be met as a student, and then as a professional. Science can be an enormously rewarding career, but only for those up to the challenge.



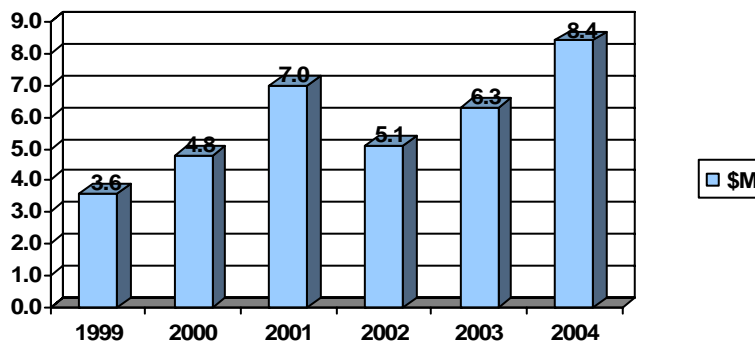
Don M. Gash, PhD, Chairman,
Anatomy & Neurobiology,
Director MRISC

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Check out Anatomy & Neurobiology ... PI's pat yourselves on the back. GREAT WORK!!!!

Sponsored Project Awards comparison as of June 30, 2004



Special points of interest:

- **Faculty Meeting** is scheduled for Friday, August 20 at Noon in MN 136.
- **August Mixer** is scheduled for **Friday, August 27, 12–1, Ice Cream Social**



Dr. Doug Gould, PhD

Let me be among the first to welcome the incoming IBS students to the department of Anatomy and Neurobiology. As the new Director of Graduate Studies for the department it will be my pleasure to assist you in discovering everything that our department has to offer – and if you eventually join with us in our mission of discovery, to help you successfully navigate the waters of graduate school. We are one of the largest academic departments in the UK College of Medicine and one of the top ranked Anatomy departments in the nation with regards to external support such as funding from the National Institutes of Health. Even with our large size and considerable resources, I think I speak for the entire faculty in saying that we enjoy unmatched levels of collegiality, camaraderie and communication in our department. Our neuroscience research interests run the gamut of topic and technique; we are proud to count some of the world's top neuroscientists among our faculty. Our commitment to education is evidenced by our strong teaching role in the medical center and our continued national prominence as leaders in educational technology development. I believe that you will enjoy your exploration of our department and know that you will feel the same pride that I do in being a part of the UK medical center no matter which department you eventually join.

From IBS to Departmental Graduate Student

The Experiences of Two Anatomy Students



Janelle Reed

The first year of IBS was full of a lot of “firsts” for me. Many experiences and friends crossed my path, but which lab and department to join were always on my mind. So I thought of how I could make the most of my lab rotations, seeing the most departments while focusing on an area where I felt comfortable. What I found was that focusing on one area of research may not have been the best approach.

As an undergraduate I was always interested in microbiology. My undergraduate research project consisted of studying thermophilic bacteria in mine fires. At the time, neurobiology had not even crossed my mind. Sitting through the IBS orientations for all of the departments made me realize there were many things I had neither seen, nor heard.

I decided to start out my rotations in the Department of Microbiology and Immunology under the direction of Dr. Brian Stevenson. I continued in that department under Dr. Robert Geraghty for my second rotation. I then rotated in the Department of Biochemistry researching the immunomodulatory effects of *Leishmania*. Although these were interesting experiences, I chose to take an alternate path and venture into the enigmatic field of neurobiology (a class which is required during the first year in IBS actually prompted me). I had little knowledge of anything related to neurobiology and honestly just thought I would dip my toes in to try it. Surprisingly, in my only rotation in the Department of Anatomy and Neurobiology, it caught my interest. I was intrigued by the research of Dr. Jeffrey Keller, his research on the proteasome, oxidative stress and their involvement in Alzheimer's Disease fascinated me. Participating in many of the social functions that the department held made me realize this was the department for me. I had an idea of where and for whom I wanted to work. Yet, as I was exposed to new ideas, I changed my mind about the research in which I was interested. Once the department was decided, the next important decision was choosing a lab.

There are many considerations when choosing a lab, such as: what type of research is conducted, would it keep my interest as a graduate student, how many people were in the lab, was the faculty member a full professor, was the faculty member excited about their research, were there funds available for me to complete my research, how did the lab members get along, and most importantly, how would I get along with my mentor. With all these things in mind, I chose the lab that fit my needs and personality – the lab of Dr. Anadora Bruce-Keller.

As an IBS student, there are many obstacles to face, and stress was paramount among them. Reflecting back on my first year, I realize that I was stressed and really didn't need to be. I was not prepared for classes in which you actually "teach" yourself. Not to mention as a graduate student, I did not realize that I can control how stressed I am. The more experiments and time you spend in the lab can result in more stress during your classes in the first year. In retrospect, I wish I would have balanced my classes and my lab responsibilities. Some of the other hurdles I encountered were realizing that it is expected to ask questions all of the time, creating my own lab schedule, and that my project will develop as I research (it may even change several times).

Being a graduate student is not a "normal" job by any means. I am never bored. There are always projects and experiments to do. As you mature as a researcher, more is expected of you. As challenging as this may seem, it's important to realize with time comes knowledge, with knowledge comes experience, and with experience it should be time to graduate.

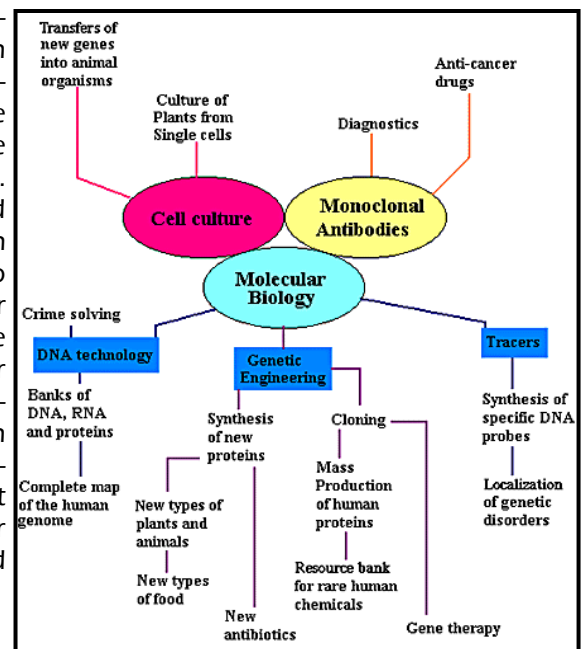


Michael Smith


Three years ago, after leaving a good position as a clinical toxicologist, I was on the verge of starting my graduate school career. Of the 30 people that started that year, those first few days in graduate school orientation showed me that by being out of college for five years I had a different perspective than many of the other students. I thought I had an idea of what I wanted to do, but in comparison to the rest of my classmates, I was very much in the dark. I did my first two rotations in the department that I thought I wanted to end up in; I enjoyed the rotations, but I felt they were not exposing me to the environment that I needed to be in to be successful. I met Dr. Wayne Cass at the Anatomy and Neurobiology orientation, where he was displaying two of his posters. I talked to him and realized that he was using an HPLC system that was very similar to the one I had been using during my time working in the toxicology clinic. Considering my insecurities regarding being five years removed from undergraduate work, the chance to go to a lab where I already knew many of the techniques and instruments was a big advantage in my mind; I could concentrate on the results of the experiments and not also have to learn too many new techniques. So, for my third rotation, I came to Anatomy and Neurobiology and I have not left yet.

When I started graduate school, I had no intention of joining the Department of Anatomy. However, after weighing my options, completing several rotations and looking at the pluses and minuses of all of the departments that I was interested in, Anatomy seemed my best fit. The requirements for being a graduate student in Anatomy were much more attractive than other departments, including: having to take only four classes after the IBS core coursework, the average length of stay for a graduate student was just over four years, and the prestige of being in one of the highest funded Anatomy departments in the nation. With that said, these were not the main reasons that I am in the department today; the main reason was my fit into Dr. Cass's lab.

As the lines that used to define and divide the basic science departments become more blurred, it is not difficult to find researchers in multiple departments investigating the same topic, likely using similar techniques. So, with a single topic being investigated in multiple departments, it would be in the best interest of the students to take a few moments to look at what each department offers them. Questions like; "What do graduates of this department do after grad school?" or "What experiences do I get to be a part of by being in this department?" are just a couple of examples. It is important to have considered of the different career pathways that exist after graduate school. Some departments are better suited for those wanting to go on to teach graduate students, and others are better suited for careers in teaching medical students or other health related fields. Some departments are better suited for a career in which there is little or no formal didactic teaching involved. I probably would have joined the Cass lab irregardless of the department Dr. Cass was affiliated with, but my choice was made a bit easier because I could see I was joining a department that was well suited to help me with my future plans.



Professional Announcements



Publications



TV Getchell, X Peng, **CP Green**, AJ Stromberg, K-C Chen, MP Mattson & **ML Getchell** (2004) *In silico* analysis of gene expression profiles in the aging olfactory-nasal mucosae of senescence-accelerated mice. *J. Neurosci. Res.* 77:430-452.

AD Gathers, R Bhatt, **CR Corbly**, **AB Farley** & **JE Joseph** (2004) Developmental shifts in cortical loci for face and object recognition. *NeuroReport*, 15, (10), 1549-1553.

Publications

Y Jin, **ML McEwen**, **S Nottingham**, **WF Maragos**, NB Dragicevic, **PG Sullivan** & **JE Springer** (2004) The mitochondrial uncoupling agent 2,4-dinitrophenol improves mitochondrial function, attenuates oxidative damage and increases white matter sparing in the contused spinal cord. *J. Neurotrauma* (In Press).

JE Joseph & **AB Farley** (2004) Cortical regions associated with different aspects of performance in object recognition. *Cognitive, affective and Behavioral Neuroscience* (In Press).





Seminars

Friday, July 30—XXXXXXXXXXXX. David Lambert, Summer KYSS Student, Anatomy & Neurobiology, 2:30-3:15 p.m., 230 Student Center.

Thursday, August 26—Novel Strategies for Calpain Inhibition. Tomoko Sengoku, Dissertation Defense, Anatomy & Neurobiology, 2:00 p.m., MN 263.

For updates and further options please check out the website <http://www.mc.uky.edu/coa/events.asp>.



Grants

Janelle Reed: "Brain Inflammation, Estrogen, and the Proteasome" from NINDS (NRSA), 07/01/04—06/30/06. Total \$54,670.


Greg Gerhardt: "Trophic Support of Ventral Mesencephalic Grafts" from Medical Univ of South Carolina, 05/01/04—04/30/05. Total \$56,301.

Annadora Bruce-Keller: "Center of Biomedical Research Excellence in Women's Health (COBRE)" from National Center for Research Resources, 07/01/04—06/30/05. Total \$72,400.

Annadora Bruce-Keller: "Tat, NADPH Oxidase, and HIV-Dementia" from NINDS, 07/15/04—04/30/09. Total \$1,532,840.

Richard Kryscio & **Anders Andersen**: "Core C—Restoration of Dopamine Function in Parkinson's Disease" from NINDS, 08/01/04—07/31/05. Total \$ 56,572, Year 5 Funds.

Zhiming Zhang: "Core B—Restoration of Dopamine Function in Parkinson's Disease" from NINDS, 08/01/04—07/31/05. Total \$ 213,629, Year 5 Funds.



Grants

Subbu Apparsundaram: "Estrogen Regulation of Neuronal Choline, Dopamine, and Norepinephrine Transporters" from the National Alliance for Research on Schizophrenia and Depression, 07/01/04—06/30/05. Total \$60,000.


Greg Gerhardt: "Neurochem Chip: Methodology to Study Untethered Rats" from NIDA, 07/01/04—06/30/05. Total Year 2 funds \$361,140.

Jane Joseph: "BCS-Cognitive Neuroscience Initiat" from NSF, 07/01/04—08/31/05. Total \$209,462.

Greg Gerhardt, Zhiming Zhang, Richard Kryscio, Peter Hardy, Anders Andersen & Don Gash: "Project 1—Restoration of Dopamine Function in Parkinson's Disease" from NINDS, 08/01/04—07/31/05. Total \$702,462, Year 5 Funds.

Zhiming Zhang, Richard Grondin & Peter Hardy: "Project 2—Restoration of Dopamine Function in Parkinson's Disease" from NINDS, 08/01/04—07/31/05. Total \$ 170,419, Year 5 Funds.




Don Gash: "Project 3—Restoration of Dopamine Function in Parkinson's Disease" from NINDS, 08/01/04—07/31/05. Total \$ 144,239, Year 5 Funds.



Summer Mentor

This summer Dr. Jennifer Brueckner has served as a faculty mentor for two programs here on the campus of the University of Kentucky. For the "Freshman Summer Program" she has been a mentor to Imhotep Williams and Jereece Jones working to produce three instructional videos for use in teaching gross anatomy. This is a six-week program for minority undergraduate students admitted to UK for Fall 2004, who have declared a major in a math or science-related field.

Dr. Brueckner is also participating as a mentor in the "Girls in Science" Program. This two-year program is sponsored by UK's Department of Behavioral Science with a NSF grant for rising 7th grade girls. The program is designed to encourage middle school girls to pursue careers in science, technology, engineering and math.

Professional Announcements

Presentations

AD Gathers—"A developmental fMRI investigation of the neural correlates of object and face recognition". 10th Annual Organization for Human Brain Mapping in Budapest, Hungary, June 15, 2004.

MJ Duncan—"Effect of short-term constant light exposure on serotonin receptors and circadian clock gene expression" as part of a workshop entitled "Very Large Phase Shifts of the Circadian Clock" at the 9th meeting of the Society for Research on Biological Rhythms, in Whistler, British Columbia Canada, June 24-26, 2004.

DJ Gould & JK Brueckner—"The Vertical Integration of the Medical School Curriculum: Insights and Obstacles" 8th Annual Meeting of the International Association of Medical Science Educators at Tulane University Medical School, New Orleans, LA, July 2004.

Presentations

DL McWhorter, JF Bertholon, DL Bolender, **JK Brueckner**, JR Cotter, CA Feldstein, EP Finnerty & **DJ Gould**—"Preparing a Manuscript for Submission to the Journal of the International Association of Medical Science Educators (JIAMSE)". 8th Annual Meeting of the International Association of Medical Science Educators at Tulane University Medical School, New Orleans, LA, July 2004.

JK Brueckner—"Impact of a Rotating Dissection Schedule on Academic Performance in the Dental Gross Anatomy Laboratory". 8th Annual Meeting of the International Association of Medical Science Educators at Tulane University Medical School, New Orleans, LA, July 2004.

July 2004 Faculty Meeting Highlights

Dean Perman came to visit the faculty to share his mission statement and general philosophy. He is going to place emphasis on achievement in all three major areas of the College of Medicine –the teaching, research and clinical branches. He believes that focusing on the areas that need improvement first will allow more support to be gained for the ones that are already strong. He does not plan to be a dean who caters to one special interest, but rather wants to take care of the immediate needs of the college wherever they may lie.

A Department of Orthopedics will be created as a separate entity from General Surgery, which may lead to some collaboration with Anatomy & Neurobiology at a later date.

Residents are now limited to and 80-hour work week.

Dr. Darrell Jennings in Academic Affairs will be developing a plan to help medical students do more research with the Basic Science Departments throughout the year.

Dr. John Thompson has been appointed the Interim Associate Dean of the Clinical Research Organization; Dr. Roger Humphries has been appointed chair of Emergency Medicine.

The College will be working to increase the number of MA/PhD students by increasing NIH funding, fellowships, and stipends to become more competitive with other universities.

IBS Orientation is Friday, August 6 at the Campbell House Colonial Room from 9:30am-4pm. Faculty and graduate students need to attend. Lunch and refreshments will be served.

Marla Powers went over the 2004-2005 Budget for the department. If you have any questions please contact her at mpowe2@email.uky.edu.

Comings & Goings

Departmental Birthdays

Happy Birthday!



- 08/03 ~ Ken Martin
- 08/04 ~ Dr. Joe Springer
- 08/10 ~ Avalon Sandoval
- 08/11 ~ Nazira El-Hage
- 08/14 ~ Dr. Anders Andersen
- 08/15 ~ Indrapal Singh

- 08/20 ~ Shreya Buch
- 08/23 ~ Melanie McEwen
- 08/23 ~ Matt Joyce
- 08/26 ~ Randy Hunter
- 08/26 ~ Kate Mier
- 08/27 ~ Dr. Don Gash
- 08/31 ~ Arpana Sali



Mixer Themes for the Year

- January**—None
- February**—Keller Lab “Valentines”
- March**—Gerhardt Lab “ π in the Sky”
- April**—Gash Lab “Survivor Isle of Reil”
- May**—Duncan/Jennes Lab “Cinco derby Mayo”
- June**—MacPherson/Ginn “Cookout”
- July**—Brueckner/Gould “Fireworks”
- August**—Knapp Lab “Ice Cream Social”
- September**—Admin Staff “Tailgate Party”
- October**—Joseph Lab “Halloween”
- November**—Snow Lab “Surprise”
- December**—Holiday Potluck



Who is going to challenge the Business Office for the trophy this year?



David Lambert grew up in Ashland, KY and graduated from Paul G. Blazer High School in 2000. He attended the University of Kentucky for three semesters from Fall 2000 through Fall 2001. He currently attends Georgetown College and will be graduating next May.

After graduation he hopes to attend Graduate School in pursuit of a career as a research scientist. This summer he has been getting a taste of being a research scientist with KYSS, which he says, has been a blessing. He has learned many different techniques, and gained a wonderful perspective on the “life” of a graduate student and a research scientist. Most importantly his experience has assured him that this is the career he should pursue.

David has spent the summer working on soluble Amyloid Beta 1-40 correlates with plaques and tangles in control, Mild Cognitive impairment and early AD subjects with Dr. Jeff Keller in the Sanders Brown Center on Aging and thoroughly enjoyed it.



Sarah Whitaker, one of the newest employees in Dr. Jane Joseph’s lab, has organized three opportunities to link UK’s Department of Anatomy and Neurobiology with the Lexington area community. In the month of July, **Christine Corbly, Sarah, and Ann Gathers** offered “Brain

Facts Fun Day” presentations at the Lexington Children’s Museum and The Living Arts and Science Center. Families and employees had the opportunity to see and handle real brains and spinal cords as well as view and participate in perceptual demonstrations. These events were organized in order to promote neuroscience awareness and to recruit children for fMRI studies. The Lexington Children’s Museum was contacted and they arranged to set up a table next to their brain exhibit on two separate dates. Visiting children and their families got to informally approach our table and ask questions, hold real brains and spinal cords, participate in perceptual illusion demonstrations, and make brain fact origami and bookmarks. On August 28, Ann,

Christine and Sarah will be guest speakers at a 6-8 year-old science camp at the Living Arts and Science Center. They will present the same basic information as at the Lexington Children’s Museum though in a more organized format.



ideaFestival

The Mind's Eye

September 21–25

Lexington, KY

(with selected events in Northern Kentucky & Louisville)

This Festival offers an incredible array of events, performances etc. all centered on cutting-edge ideas and innovation across and at the intersections of different fields (science, business, philosophy, the arts, design, film and technology). Featured presenters will include **Twyla Tharp**, the Emmy-Award winning choreographer; **Oliver Sacks**, neurologist and author of a number of best-selling books including *Awakenings*; **Jeff "Skunk" Baxter**, a leading defense advisor to the Pentagon and one of the original members of the Doobie Brothers; **Neil Gershenfeld** from the MIT Media Lab; **James Brubaker**, President of Production at Universal Studios and producer of such films as *the Right Stuff* and *Raging Bull*; **Dr. Ben Carson**, internationally known head of Pediatric Surgery at Johns Hopkins; **Sir George Martin**, the groundbreaking producer of the Beatles (he will do an incredible multi-media presentation on the making of the Sgt. Pepper Album) - and 50 other confirmed speakers and performers.

It is doubtful whether one can go anywhere in the world for four or five days and hear such a world-class, diverse group of innovative people. For all of the details on the schedule, tickets, etc, you can go to www.ideafestival.com.

Employee of the Quarter Nomination Form

The Quarterly Employee Awards are announced in April (for nominations submitted January through March); July (April through June); October (July through September) and January (October through December). The Employee of the Year Award will be selected from all nominations throughout the year and will be announced annually at the departmental Holiday Luncheon in December. **Due to Kim Wilkirson by September 30, 2004.**

When considering someone for the award, think of the individual who has made your job easier or assisted you in performing your job. To complete the nominations please complete the following questions. Use additional paper or the back of this if necessary.

Date: _____ Candidate: _____

Nominator: _____

Is this individual a regular full-time employee in the Department of Anatomy & Neurobiology? _____ Yes _____ No

1. What attributes or actions make this individual worthy of your nomination? Give examples.

2. How is this individual an asset to the Department of Anatomy & Neurobiology? Give examples.

3. How have you seen this individual contribute to the UK and/or greater community? Give examples.

4. With 1 = average and 5 = outstanding, please rank the nominee in the following areas:

Quality of work: 1 2 3 4 5

Attitude toward performing job duties: 1 2 3 4 5

Problem solving skills: 1 2 3 4 5

Willingness to help others: 1 2 3 4 5

Service to the department/university: 1 2 3 4 5

Submit to Kim Wilkirson in MN 225 Medical Science Bldg, 0298 Phone: 323-6926

MN 225 Medical Sciences Building
Lexington, KY 40536-0298
Phone: 859-323-5155
Fax: 859-257-6700

<http://www.mc.uky.edu/neurobiology>

Please send comments & submissions to Dalene Rice at darice2@email.uky.edu or call 859-323-8260.

Next Deadline is August 20, 2004

Available Training

Training for the Labs

The University requires safety training classes to be completed before beginning certain types of work. The requirements apply to all individuals involved in the covered work, including faculty, staff, students, postdocs, visiting researchers and volunteers. To find out what classes you need to take, consult the [Training Checklist](#).

NOTE: Anyone who works with chemicals in a laboratory must complete the following three classes: Chemical Hygiene Plan/Laboratory Safety, Hazardous Waste, and Fire Extinguisher Use.

Chemical Hygiene Plan/Lab Safety

220 Scovell Hall or [online](#).

August 17 ... Tuesday ... 9:30–10:30

Bloodborne Pathogens

This class is available upon request and [online](#).

Hazardous Waste

220 Scovell Hall or [online](#).

August 17 ... Tuesday ... 10:30–11:30

Initial Radiation Safety: Initial Radiation Safety (~ 15 minutes total) is offered every day at 1:30 pm at the Radiation Safety Office, 102 Animal Pathology Building (other times can be arranged). You must bring two completed forms with you: On-Site Radiation Safety Training Form and Radiation Worker Registration Form, both signed by your Authorized User or

unit supervisor. If you have questions, contact Tracy Cayson at 323-6777.

Basic Radiation Safety (214 Health Sciences Learning Center)

August 20 ... 9–12p ... HS501C

September 16 ... 1–4p ... HS504

October 20 ... 1–4p ... HS 214

Advanced Radiation Safety

This class is only available [online](#).

Fire Extinguisher Use (220 Scovell Hall)

August 17 ... Tuesday ... 11:15–12p

NOTE: [Online courses can only be taken using a UK computer.](#)

Corporate Compliance Training is a **MANDATORY** training for all individuals who receive a paycheck from the UK Medical Center. It is only offered from 3:00–3:30 p.m. during UK Hospital Orientation. Ignoring this requirement can result in dismissal from employment at the University of Kentucky.

Human Resource Development course offerings

<http://www.uky.edu/HR/HRD/>

<http://www.uky.edu/IS/Training/>

08/05 ~ Excel QuickStart

08/05 ~ Business Etiquette

08/06 ~ Personal Decision Making

08/11 ~ Outlook QuickStart

08/12 ~ Manipulating Clip Art

08/13 ~ Basic HTML 1

08/16 ~ Basics of Leadership

08/16 ~ Word QuickStart

08/17 ~ Resolving Workplace Conflicts

08/19 ~ PowerPoint QuickStart

08/24 ~ HTML 2

08/26 ~ Communicating with Success

08/27 ~ Winning Image

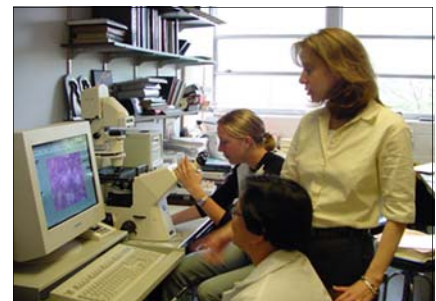
08/30 ~ Teamwork

08/31 ~ Excel Charts & Graphs

09/16 ~ Presenting Effectively I

09/23 ~ Presenting Effectively 2

For additional details, signing up, location, etc ... please check out the training calendar for Human Resource Development as noted above.



Dr. Annadora Bruce-Keller (standing) with Fe Dimayuga at the computer & Janelle Reed at the microscope.