



FEMMES 2013 Capstone Event

Saturday, February 23, 2013

9:00 AM – 4:00 PM

Duke University, West Campus

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FEMMES BACKGROUND

Our Mission

The existing gender disparities in the STEM (science, technology, engineering, and math) fields underscore the need for outreach programs to help engage young women in such areas. Founded in 2006 by Vicki Weston, FEMMES (Females Excelling More in Math, Engineering and Science) is a student-led organization at Duke University that hosts educational outreach programs related to math, science, and engineering for 4th-6th grade girls from underserved areas.

Our Philosophy

By incorporating engaging, hands-on activities into all of our programs, we allow the girls to learn in a fun, supportive environment and explore their potential in the STEM fields. We hope to build our participants' confidence in their academic skills and to empower them to pursue their dreams. Many of our students' parents and teachers have told us that after attending FEMMES, the girls become more motivated, participate more in class, and show a greater interest in school. The real power of our program lies in the way we use female role models to demonstrate how women can and do excel in these fields. In all components of FEMMES, female students and faculty members volunteer their time to instill enthusiasm about their careers in the developing minds of young women. Through the years, our volunteers have developed personal relationships with the participants and have had a positive influence on their attitudes towards STEM fields. Our programs provide excellent opportunities for female faculty and students to serve as role models and provide mentorship.

Our Programs

The FEMMES organization seeks to improve female participation in STEM subjects with three main components: an annual one-day capstone event, an after-school program, and a summer camp program.

Capstone Event

The capstone event at Duke University is held each Spring. The capstone event is a free program held on a Saturday from 9:00AM-4:00PM for 4th-6th grade students in the Durham area. This year, we will be hosting more than 275 girls at Duke, which is the most participation we have had since FEMMES was founded in 2006. The day includes keynote speakers who explain their roles in their particular STEM fields and the paths that led them to those roles, followed by two morning activities, lunch, two afternoon activities, and closing remarks. Each hands-on activity is designed and led by female faculty members, female graduate students, and STEM undergraduate female organizations. Participants are placed in groups of 12-15 girls led by 2-3 undergraduate or graduate student volunteers who guide the participants through four different activities held in the engineering, science, math, and laboratory buildings on

campus. As an assessment of our program, surveys are given to the participants prior to, on the day of, and six weeks after the capstone event.

After-School Program

Despite the success of the capstone event, we understand the need for continuous outreach in order to maintain interest. Studies have shown that while one-day events produce great short term effects on interest and confidence, they may not last long enough to really influence a child's drive and ambition. For this reason, the FEMMES concept was expanded in Spring 2008 to an after-school mentorship program that fosters long-term relationships and constant encouragement. This mentorship opportunity invites 4th-6th grade girls to learn from Duke students for six weeks per semester at select elementary schools in the Durham area. Student volunteers travel to several Durham schools throughout the week to lead activities that expose girls to more applications of science, engineering, and math and to teach fundamental concepts in an engaging, hands-on manner. Some activities that we have done in the past include designing egg-drop parachutes and trebuchets (Physics and Engineering), performing ink chromatography (Chemistry), and making respiratory system models (Biology). An after-school committee meets throughout the year to design activities for the curriculum, acquire materials, and train the volunteers ahead of time so that all activities run smoothly.

In addition to our weekday after-school program, we decided to add a six-week Saturday series in Fall 2009. The Saturday series, held on Duke's West Campus, integrates activities that parallel the ones we plan for the after-school program. However, instead of going to the elementary schools during the week, we invite sixty 4th-6th graders to Duke to do the activities. This way, we are able to reach out to other young girls who do not attend the elementary schools with whom we have partnered with for our after-school program. We plan to continue the Saturday series as a vital component of our after-school program.

Summer Camp

This past August, FEMMES also held its fourth week-long summer day camp at Duke for fifty 5th-6th grade Durham girls. Duke University undergraduate and graduate females served as both counselors and mentors. A past summer program's theme was Forensic Science, and we incorporated fun hands-on activities, such as fingerprint analysis, DNA extraction from cheek cells, blood spatter analysis, footprint impression, and powder analysis. In addition, participants were introduced to several exciting STEM research projects being conducted on Duke's campus including the Smart Home and the Duke immersive Virtual Environment (DiVE), a six-sided virtual reality theater. A field trip to the Duke Lemur Center has been integrated into the summer camp curriculum as well. The camp was a huge success, and we are hoping to establish this summer camp program as a long-standing component of FEMMES.

SCHEDULE

~ Saturday, February 23, 2012 ~

8:45-9:15 a.m. – Students arrive, meet groups, get schedules and tote bags

9:15-9:30 a.m. – Travel to Love Auditorium

9:30-10:00 a.m. – Welcome speeches

10:00-10:15 a.m. – Break off into groups and Travel to first activity

10:15-11:00 a.m. – Activity 1

11:00-11:10 a.m. – Travel to second activity

11:10-12:05 p.m. – Activity 2

12:05-12:15 p.m. – Travel to lunch

12:15-1:15 p.m. – Lunch

1:15-1:25 p.m. – Travel to third activity

1:25-2:10 p.m. – Activity 3

2:10-2:20 p.m. – Travel to fourth activity

2:20-3:05 p.m. – Activity 4

3:05-3:25 p.m. – Pass out and complete evaluations/questionnaires

3:25-3:35 p.m. – Return to Auditorium

3:35-3:55 p.m. – Closing remarks and raffle

4:00-4:45 p.m. – Pickup by parents

Faculty Biographies and Descriptions:

Keynote Speaker: Dr. Elizabeth Brannon

Dr. Elizabeth M. Brannon is a professor in the Department of Psychology & Neuroscience and the Center for Cognitive Neuroscience at Duke. She is currently the Director of Graduate Studies for The Cognitive Neuroscience Admitting Program and the head of the graduate program in developmental psychology. She received her PhD from Columbia University and was funded by an NSF and NIH predoctoral fellowships. She has received numerous academic awards and honors including the Young Investigator Award from The Society for Experimental Psychology, a CAREER award from the National Science Foundation, a Merck Scholar Award, and a James McDonnell Scholar Award. She is an Associate editor of *Developmental Science*. Dr. Brannon teaches courses on cognitive development and comparative psychology for undergraduate and graduate students and conducts research on thought without language in monkeys and children. She is married to another Duke Professor and they have three sons. In her spare time she enjoys reading novels, playing with play mobile setups with her sons, and hiking!

American Medical Women Association

(AMWA)

Participants will learn about the Cardiovascular system and how the heart pumps blood to parts of the human body. Students will learn how to take their pulse and experiment with what changes their heart rate. Lastly, the girls will be able to touch and feel a real cow heart and learn about the anatomy of a human heart.

The American Medical Women's Association (AMWA) is an organization which functions at the local, national, and international level to advocate for the advancement of women in medicine and for the improvement of women's health. We achieve this by providing and developing leadership, advocacy, education, expertise, mentoring, and strategic alliances. Some of the activities of the Duke chapter include a mentoring program between medical students and female physicians, a mentoring program between medical students and undergraduate pre-medical students, panel discussions made up of female physicians, potlucks, dessert socials, and community service events.

Dr. Libby Bucholz

"Elevated Engineering"

Engineering is all about problem solving and applying what you know. This demo will introduce students to the wonderful and exciting world of engineering, a place where math, physics, chemistry, and biology collide. After a brief introduction, students will break into teams and engage in a hands on problem solving assignment where they will learn about the fundamentals of engineering as they attempt to build the tallest weight bearing structure they can using only paper and tape. How tall will yours be and can it sustain the weight of an engineering textbook or will it crumple to the ground? After we test everyone's structure we will learn how to make hypotheses about paper and its overall capacity to bear weight. What questions we answer will be up to you!

Dr. Elizabeth Bucholz is an instructor in Duke University's department of Biomedical Engineering. She graduated from the University of Pennsylvania in 2002 and was the recipient of predoctoral NSF fellowship. She received her PhD from Duke University in 2008 and has been an instructor teaching undergraduates and graduate students for the past 2.5 years. She teaches a number of graduate and undergraduate courses, her favorite being Signals and Systems. She loves engineering and enjoys making it as accessible as possible to students of all ages. Dr. Bucholz has two young sons and is happily married to a self proclaimed computer geek.

Chemistry Outreach

"Chemistry and Crafts"

Chemistry plays a vital role in the arts and crafts world—everyday, chemists and artists use their scientific knowledge to reproduce pigments, preserve artwork, test the authenticity of objects, and create new mediums. If you can make it, touch it, or observe it, chances are that chemistry is involved! In "Chemistry and Crafts," young scientists will employ fundamental chemical principles to create a variety of colorful crafts. First they'll discover the importance of safety in the laboratory by decorating safety goggles that they will wear for the rest of their experiments. Next, they'll explore how molecular attraction plays a role in making beautiful marbled name badges. Then we'll investigate the concept of polymers and cross-linking as we create fun, colorful polyurethane foam "smoothies". Continuing with the theme of plastics, we will use the property of heat to soften, sculpt, and mold a thermoplastic polymer into creative new shapes. Finally, we'll use chromatography to create beautiful butterflies out of water-soluble ink, water, and coffee filters. After each butterfly receives her colorful wings, every participant will collect her crafts to take home as evidence of her newfound scientific knowledge!

Dr. Ken Lyle - Chemistry Outreach Coordinator

Dr. Ken Lyle works for the Department of Chemistry of Duke University as an instructor, lecture-demonstrator, and chemistry outreach coordinator. Ken earned a Bachelor's of Science degree in Education from the University of Tulsa, a Master's degree in Education from the University of Houston, and a Doctorate in Chemistry from Purdue University. His research investigated the experiences of female pre-professional majors learning chemistry in order to better understand the factors contributing to the difficulties learning and understanding the chemical concepts. In his free time, Ken likes to bowl, hike, and take long walks on the beach.

Group Members: Emma Babb, Monica Chelius, Lexi Kay, Caroline Latta, Jessica Prescott, Kat Shirrell, Erica Weinberg, Becky Zon, Gabby Hodgins, Zalika Sankara, Katie West

Dr. Rose Eapen

"Otolaryngology, head and neck surgery: How do we care for our sensory end organs"

Station 1: Ear video and tuning forks – Watch ear video and learn about the parts of the outer ear, middle ear and inner ear. Learn how these all work together to help us hear. See how tuning forks can help us figure out what type of hearing loss a person has. Use an otoscope to look at the ear canal and eardrum.

Station 2: Knot tying and suturing – Learn how to tie a surgeons knot. Learn how to do a simple interrupted and running suture (we will use cross stitch material to sew on). Learn how to tie knots using surgical instruments.

Station 3: ear surgery – Test your skill with ear tubes. This involves placing ear tubes in a model of the tympanic membrane.

Station 4: Ear, nose and larynx models – Look at the models and try and identify the 3 hearing bones in the ear. See how the sinuses are related to the nose. Try moving the vocal cords and see how they work to help us breathe, talk and sing. Learn how problems in these areas can affect how they function and some things we can do to repair them.

Rose J Eapen, MD, is an assistant professor of otolaryngology–head and neck surgery within the Duke Department of Surgery. Dr. Eapen attended the New York University as a Neural Science Major. She continued her education in medicine at Duke University and graduated in 2005. She completed her otolaryngology residency at the University of North Carolina, Chapel Hill. During her training she was a NIH T32 research scholar in the hearing sciences laboratory. She started her academic career at Duke in August of 2012 and she practices pediatric otolaryngology concentrating on multidisciplinary management of complex disorders including airway, voice, speech, and swallowing.

Dr. Kathy Franz

"The Chemistry of Money"

Chemistry is the study of elements and how they combine and change into different substances. What elements are combined to make pennies? In this experiment, we will investigate the chemistry of pennies. We will test the best way to clean pennies, and in the process, we will learn about different forms of metals and how you can change one form to another.

Dr. Kathy Franz is an assistant professor in the Department of Chemistry. As a bioinorganic chemist, she is interested in the roles that metal ions like iron and copper play in living things. Her lab's website is available at <http://www.chem.duke.edu/labs/franz/>.

GE Aviation

"The Sky Floater Challenge"

This is one of the featured Engineers Week Activities. In this activity, students will be challenged to weight a helium filled balloon to make it hover for 10 seconds. They will learn about the concepts of gravity, lift, neutral forces, density and air pressure.

The General Electric Women's Network is a voluntary organization that helps invest in employees to deliver both personal career and GE business growth. The networks mission is to foster professional women's development to grow, attract and retain successful women throughout GE by providing development opportunities that focus on leadership, advancement and career broadening opportunities through information, education, and networking with other women. The RTP chapter is comprised of women from Raleigh, Durham, Chapel Hill, and Mebane involving 4 GE business units, who are committed to increasing interest in STEM disciplines for K-12 girls.

Heather Heenehan

"Spinner Dolphins, Sounds and Spectrograms"

In this activity students will learn about Hawaiian Spinner Dolphins, a type of dolphin that lives a very coastal lifestyle. We will go through a day in our lives and a day in the life of a Hawaiian Spinner Dolphin to understand their very different and opposite schedules. We will also talk about why scientists are worried about these dolphins, why they are studying the sounds they make and how their hearing and use of sound differs from ours. Students will be introduced to the following concepts: rest and vigilance, acoustics, frequency and spectrogram among others. Activities will include the following: polling the students to understand a human's day and comparing that to a spinner dolphin's day, a hearing test, using iPad apps to "see sound" and creating our own spectrograms and predicting the sounds of different marine mammals.

Dr. Heather Heenehan is pursuing a PhD in Marine Science and Conservation in the Nicholas School of the Environment. She graduated from the University of Connecticut with a BS in Environmental Science and recently graduated with her Master of Environmental Management degree from Duke in Coastal Environmental Management. Her master's project, a collection of web articles, focused on spinner dolphins around the Island of Hawai'i and the impacts of human interactions (tourism) on these dolphins. She will continue to work on Hawaiian Spinner Dolphins for her dissertation and investigate the acoustic behavior of spinner dolphins in their resting bays. She will explore the current sounds that the dolphins make, look at variation through time and space and explore policy implications of this research.

MGM (Molecular Genetics and Microbiology) Group

"DNA, the recipe for you (AND MONSTERS!)"

Germes are all around us! They are on our skin, in our mouths and on the food we eat. Some are beneficial, while others can cause disease. In this session we'll explore all about germs. We'll see bacteria up close through a microscope connected to the projector. We'll learn about how bacteria stick to our cells to make us sick, and ways we can stop that from happening (by washing our hands, and getting vaccines). We'll also talk about the probability that a certain germ will make you sick and examine factors that influence that such as the ability of the bacteria to cause disease and the amount of time you are exposed to it.

The Molecular Genetics and Microbiology Department (MGM) has two main areas of research. The first is pathogenesis: or the ability of fungi, bacteria and viruses to cause disease. Some of the pathogens, or disease causing germs studied, cause disease only in people with weak immune systems. Understanding how these organisms function is key to protecting people who have cancer and are undergoing chemotherapy, have had an organ transplant, or have HIV. Other diseases studied such as Yellow Fever, Tuberculosis and the Plague, are incredibly harmful to healthy humans and must be studied in special laboratories by researchers in hazmat suits. Research on these diseases focuses on designing vaccines to prevent people from catching them and becoming ill. The second area of research is genetics: the study of how DNA controls the cell. Some labs study exactly how DNA is packed in the cell, and how it is converted to the proteins that make the cell run. Other labs study how small changes in DNA can cause a person to be more, or less likely to contract a particular disease.

Dr. Kathy Nightingale

"Ultrasound Imaging: Using Sound to See and Guide Surgery"

Medical imaging allows doctors to look at organs and structures that are inside the body without having to cut the body open, enabling doctors to diagnose symptoms and determine treatment plans painlessly. Ultrasonic imaging is one of the types of imaging systems that are used by doctors. Ultrasound sends sound waves into the body, and makes pictures from sound that bounces off of organs and comes back to the surface. Because the images are made in real-time, ultrasound systems are often used to guide surgical procedures, allowing doctors to make smaller cuts when performing surgery. We will discuss how ultrasound systems make pictures, and then we will use ultrasound imaging systems to identify structures in phantoms ('virtual patients' - big blocks of material that you can't see through with hidden objects inside), and to find the objects, measure how big they are, and then we will cut open the phantoms using ultrasound to guide us to see if our measurements were correct.

Dr. Nightingale is an imaging scientist, who develops novel imaging methods to improve the diagnostic utility of ultrasonic imaging systems. She obtained her B.S. and Ph.D. degrees from Duke University, and is now a faculty member in the biomedical engineering department at Duke. Her research interests include elasticity imaging, shear wave imaging, combined diagnostic and therapeutic ultrasound methods, and the accurate characterization of nonlinear acoustic propagation in soft tissues. She also enjoys skiing, surfing, windsurfing, and reading.

Amy Schmid

"Genes and traits: a closer look at the family tree"

This project will focus on certain genes and how they relate to traits that we can see just by looking in the mirror. FEMMES participants will examine three traits that arise from a single gene and put this in the context of other participants. In the workshop we'll see how many people have those traits and talk about why some traits might be more common than others in a large group of people. Participants will receive an activity kit to take home to see how their traits compare with those of their family.

Amy Schmid is an Assistant Professor in the Duke University Department of Biology and Center for Systems Biology. Dr. Schmid received her Bachelor's degree in Biology and German from Marquette University in Milwaukee and her PhD in Cellular and Molecular Biology from University of Washington in Seattle. She conducted postdoctoral research at the Institute for Systems Biology, also in Seattle. Systems Biology is an interdisciplinary science that seeks to understand cells, tissues, and organisms in a holistic way. Such an understanding requires collaboration between biologists, mathematicians, physicists, and other scientists. Research in the Schmid lab uses Systems Biology approaches to understand how microbes survive extreme environments, and how molecular interaction dynamics enable such survival.

Dr. Rochelle D. Schwartz-Bloom

"Pharmacologists as Sleuths: Finding Salicylates"

The project for FEMMES participants will focus on the role of plants in providing drugs used as medicines. We will discuss the origin of aspirin from the willow tree, and its cousin, salicylate, which is found in numerous plants. Salicylate has been added to a number of household products, including shampoo and chewing gum. The FEMMES participants will perform experiments to determine if certain plants and products contain this drug. They will learn why the drug is found normally in plants and why it is added to products that society uses. They will also learn how it works.

As a pharmacologist, Dr. Schwartz-Bloom studies how drugs cure diseases, or cause trouble. Her expertise is in neuropharmacology, or how drugs affect the brain. Dr. Schwartz-Bloom's research focuses on how to prevent cell death in the brain with drugs. Her most recent research is in the area of science education, and she has developed several science curricula at the K-12 level. Dr. Schwartz-Bloom's research program is called RISE at Duke (Raising Interest in Science Education) and her research and programs can be viewed [here](#).

Dr. Nina Sherwood

"The Fly and I - How Flies can teach us about Ourselves"

How similar do you think you are to those little flies you see buzzing around your fruit? Do they have a brain? Feelings? Do they sleep? Groom? Fight? Get sick? In this workshop we will learn how the tiny fruit fly can teach us about how our own bodies work. We will look at a variety of flies, observing their physical traits using the microscope and a few of their behaviors, and then identify mutants in these traits or behaviors from a set of "mystery" flies. You'll be amazed by what can happen when a single gene - one that you may have too - has a mistake in it!

Nina Sherwood is interested in understanding how the nervous system works, and thinks that fruit flies are a great way to address this and many other questions about biology. Her lab studies why certain genes, found in humans as well as flies, are necessary for nerves to function. She is an assistant research professor in the Biology department.

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The Society for Women Engineers (SWE)

"Chromatography!"

Make your own colorful bandana and learn the science behind chemical chromatography, or the technique used to separate mixtures. Watch how different colors spread on paper dipped in water, and then decorate your own bandana with permanent markers of every color! You will see how these colors separate on fabric after rubbing alcohol is added, and have lots of fun with this great science activity.

"Making Ice Cream"

"Who doesn't love ice cream? Learn the science behind ice cream making, and then make this delicious treat in a baggie! This is a fun way to learn about solids and liquids, freezing points, energy absorption and more!"

Duke SWE, the Society of Women Engineers, is a group of creative, passionate, and energetic female engineers. We enjoy leading outreach activities, because we love working with kids and introducing them to how much fun science and engineering can be! Duke SWE is excited to be a part of FEMMES again-we've enjoyed being a part of the Capstone in the past and hope to have a great time this year!

Synapse

"Multimodal Seeing with the Brain"

The brain dynamically integrates information from our five senses to produce a seamless representation of the world. However, the brain has evolved to work under a specific set of circumstances. For example, our speech matches the way our lips move, and the foods we eat smell the way they taste. This exhibit will test the assumptions that our brains make about the world by disrupting the normal relationships between sensory systems. We will watch and listen to speakers whose lips are saying something else, and try to guess the identity of foods we can taste but not smell.

Synapse is a neuroscience club that seeks to make connections within the Duke community and to the surrounding city of Durham. At Duke, we host a twice monthly dinner seminar that fosters discussion between students and neuroscience researchers. We teach introductory neuroscience classes to local high school students at Duke and local schools. Finally, we host the Durham regional Brain Bee competition at Duke for students to test their neuroscience knowledge.

Dr. Susan Rodger

"Creating a 3D Interactive Story"

Participants will learn the basics of computer science programming by creating a 3D virtual world. Using the programming environment Alice on a laptop, they will first select 3D objects from a library and place them into a virtual world. They will then learn how to select commands to make the objects move, talk and interact. Next they will learn how to create events so they can interact with the virtual world. For example, everytime they press the j key, the cheerleader will jump up and do a front flip. Participants will then learn how to combine these elements together to write a short interactive story.

Susan Rodger is a Professor of the Practice in the Computer Science Department at Duke University. She completed her PhD in Computer Science at Purdue University. Her research interests include creating interactive and visual

software for teaching computer science, and computer science education. One project, Adventures in Alice Programming, looks at integrating computer science into middle schools and high schools.

Dr. Anne West

"I love neurons and so can you!"

We will have three fun activities to give FEMMES participants hands-on experience understanding the structure and function of neurons. Everyone will get to build a neuron while we discover how having different shapes helps neurons to accomplish different goals. (And everyone gets to take their neuron home!) Next we will look at some real brains to see how all those neurons are hooked together into the special organ that makes us who and what we are. Finally we will play a game that will teach participants some of the key principles of how neurons communicate with one another.

Dr. Anne West is an Assistant Professor in the Department of Neurobiology at Duke University Medical Center. In the West lab we study the molecular mechanisms and biological consequences of stimulus-regulated transcription in the CNS. In addition to enhancing understanding of normal brain development and plasticity, our studies are revealing new insights into how dysregulation of gene transcription contributes to cognitive impairment and mental illness. Dr. West got hooked on science as an undergraduate at Cornell University in Ithaca, NY where she studied how insects turn chemicals from the food they eat into messages that they use to communicate with one another. She then completed her M.D. and Ph.D. degrees at Harvard Medical School, where she fell in love with the beautiful structure of neurons, the cells that make up the brain. You can see some pretty pictures of neurons and learn more about research in the West lab on the web at www.westlab.org.

Dr. Rebecca Willett

Ultrasound imaging is used to create detailed pictures of the inside of our bodies without performing surgeries. These images are created by sending sound waves into a person's body and measuring how the bounce off internal organs and other structures. These measurements must then be used to generate the image a doctor or patient sees. In this activity, we will simulate ultrasound measurements and image reconstruction using some simple tools and mathematics.

Rebecca Willett is an associate professor in the Electrical and Computer Engineering Department at Duke University. She completed her PhD in Electrical and Computer Engineering at Rice University in 2005. Prof. Willett received the National Science Foundation CAREER Award in 2007, is a member of the DARPA Computer Science Study Group, and received an Air Force Office of Scientific Research Young Investigator Program award in 2010. Prof. Willett has also held visiting researcher positions at the Institute for Pure and Applied Mathematics at UCLA in 2004, the University of Wisconsin-Madison 2003-2005, the French National Institute for Research in Computer Science and Control (INRIA) in 2003, and the Applied Science Research and Development Laboratory at GE Healthcare in 2002. Her research interests include network and imaging science with applications in medical imaging, neural coding, astronomy, and social networks. Additional information, including publications and software, are available online at <http://www.ee.duke.edu/~willett/>.

Dr. Terri Young

Participants learn about the intricacies of the human eye and perception and will have the opportunity to dissect cow eyeballs!

Terri L. Young, M.D., M.B.A. is a tenured Professor of Ophthalmology, Pediatrics, and Medicine at Duke University, and a Professor of Neuroscience and Behavioral Disorders at the Duke-National University of Singapore Graduate Medical School. Dr. Young is the Founding Director of the Duke Eye Center Pediatric Ophthalmic Genetics

Research and Clinical Program. Dr. Young is an internationally recognized expert in myopia molecular genetics/genomics, and ophthalmic genetics. Her research efforts in 1998 initiated the field of human refractive error molecular genetics. Her research team has successfully identified several important genetic loci and genes for severe and moderate myopia. Her latest work in collaboration with international research teams has uncovered susceptibility genes for optic nerve hypoplasia, progressive open angle glaucoma, and brittle cornea dystrophy, astigmatism, and posterior polymorphous corneal dystrophy. Her lab has also discovered novel genes for retinal cone dystrophy, vitreo-retinal degeneration, hereditary benign intraepithelial corneal dystrophy, primary congenital glaucoma, and eyelid dysplasia. She is developing treatment applications for various ophthalmic genetic disorders using mice and zebra fish as animal models. She has been continuously funded by the NIH since 1998. She has published over 165 peer-reviewed scientific manuscripts, and several book chapters.

Dr. Young has received several accolades, including Career Development, Physician-Scientist, and Lew R. Wasserman Merit Awards from Research to Prevent Blindness, Inc. She was featured in the United States National Library of Medicine Exhibit on American Women Physicians. She is a Fellow of the American Ophthalmological Society, the Philadelphia College of Physicians and Surgeons, and the Association for Research in Vision and Ophthalmology. She has held officer positions and received Honor Awards from the American Academy of Ophthalmology, the American Association of Pediatric Ophthalmology and Strabismus, and Women in Ophthalmology. She has been voted a Best Doctor for the past 6 years. Dr. Young serves on the journal editorial boards of *Experimental Eye Research*, *Ophthalmology and Eye Diseases*, and *the Journal of Ophthalmology*.

Faculty website- <http://www.chg.duke.edu/faculty/tyoung.html>
