

# Stright Lines

---

The official Newsletter of the IUP Mathematics Department

Fall, 2004-----Volume 7, Issue 2

## Editor's Note

We have some outstanding current undergraduate students in the IUP Mathematics Department, and in this issue we will profile two of them. We have also included updates on faculty retirements and new hires, as well as several letters from alumni.

Dr. Tom Short worked with me preparing this newsletter and Tom will take over primary responsibilities for editing the next issue of *Stright Lines*. You will find an article about Dr. Short in this newsletter.

We look forward to hearing from our alumni and invite you to get in touch with us. Dr. Short's e-mail address is [tshort@iup.edu](mailto:tshort@iup.edu). We hope you enjoy this edition of our newsletter.

Jerry Buriok

---

## Dr. Caroline Anderson Retires

by  
Dr. Gary Stoudt

Dr. Caroline Anderson's career at IUP dates to 1968 at what was then known as "The Punxsutawney Center." She worked her way from Instructor to Assistant Professor with Tenure in 1971,

to Associate Professor in 1977. Along the way she was able to complete her Doctor of Arts degree at Carnegie Mellon University in 1983. During her tenure at IUP, Dr. Anderson taught a wide variety of service courses effectively, including pre-calculus, calculus, and probability and statistics. In the last decade, Dr. Anderson has concentrated her efforts on MATH 217, Probability and Statistics.

Dr. Anderson made herself into an innovative statistics teacher. Over the years she has taken her students from Minitab on the VAX, to SPSS, to hand-

Committee, and numerous search committees. She was also often on the important Department Evaluation and Tenure and Promotion Committees, having chaired the latter on two separate occasions.

---

### **New Tenure-Track Faculty**

Two new faculty members joined the Mathematics Department in the fall of 2004, and we want to welcome them aboard.

**Dr. Yong Colen** was born in Seoul, Korea and came to America when he was twelve years old. He holds a B.S. degree from Ball State University, an M.A. from Yonsei University in Korea, and a Ed.D. from Columbia University. The following is the information Dr. Colen provided about himself:

“I decided to pursue a study of mathematics for two reasons: (1) I was very fortunate to have one outstanding mathematics teacher for all four years in high school. Ms. Guillard inspired me to view mathematics as a creative process. (2) Secondly, after studying architecture for a year, I switched my major to mathematics education. I literally wanted to think outside the cubical.

I have taught students from elementary to university levels. My primary interest lies in finding and conveying ways to improve how our students learn mathematics. Specifically, I would like to use technology to improve teaching and learning, investigate comparative/international mathematics education, design challenging curricula for all students and improve prospective teachers’ mathematics knowledge and pedagogy.

I have three children: Hannah Emily of New York, Philip Andrew of New Jersey, and Alyssa Lydia of Ohio. Each time we move to a different state, God has provided a wonderful wonder. Due to the strong correlation between moves and having children, my wife, Jung, is very uneasy about the move to Pennsylvania. Otherwise, we are VERY excited about a new chapter in our lives.”

**Dr. Brian Sharp’s** specialty is also mathematics education. He provided the following statement about himself:

“I was born in Elkins, West Virginia and grew up playing baseball and fishing. After high school, I attended West Virginia University where I received a B.A. and M.S. in mathematics. As part of my Masters’ program, I taught sections of algebra and calculus. I loved teaching mathematics, so I obtained my teaching certificate and taught for eight years at the middle school and high school levels. After my eighth year of teaching, I decided to pursue my doctorate at the University of Virginia. While at UVA, I became interested in how students learn rational number concepts and how technology can be used to improve the teaching and learning of mathematics.

I have a wife, Denesa, and three active boys – Garrett, Grant, and Gunner. We all enjoy baseball, biking, and fishing”

We welcome Yong and Brian to the IUP Mathematics family!



High School in Tucson, Arizona, class of 2001. Brigid is spending her senior year studying mathematics at Cambridge, England.

Brigid has been an exceptional student in a number of ways. As a high school student, she completed AP courses in Calculus, Physics, American Literature, Economics, European History, US

really that attitude that brought me to IUP.

**Editor:** As a mathematics/physics/Honors College student, tell me about your daily schedule.

**Brigid:** I'll admit I stay quite busy, but

**Editor:** What brought you to IUP?

**Brigid:** I came to visit IUP as a senior in high school because I was interested in the Honors College. Over the course of the visit, I was impressed by the quality of the programs as well as the care and support provided by both faculty members and students. It was

care about students, and that is a huge benefit of being at IUP.

**Editor:** What characteristics do you have that help you deal with your daily challenges at IUP?

**Brigid:** In general, I think I have a positive attitude and surround myself with people that I care about and who care about me, so that support network really helps me deal with just about any challenge I face.

**Editor:** Tell me about the unique educational experiences you have had outside of IUP.

**Brigid:** The summer after my freshman year, I participated in and REU (Research Experience for Undergraduates) in Algebraic Representation Theory at Temple University. Following that experience, I traveled to Cambridge University in England to take part in their three week Science Summer School. The following spring, I studied in Budapest, Hungary through the Budapest Semesters in Mathematics Program at the Technical University Hungary.

Upon my return to the States, I worked for the Department of Defense as part of a cryptology mathematics program. This summer I will again work for the Department of Defense as part of the Director's Summer Program. I have recently accepted an offer to spend the 2004-2005 academic year as a visiting student at Sidney Sussex College, Cambridge England, where I can study in their mathematics program for the final year of my undergraduate studies.

**Editor:** What are your career aspirations, both short- and long-term?

**Brigid:** Short term, I'd like to learn as much as possible about different areas of mathematics, especially cryptology. Longer term, I'd like to get my Ph.D. in mathematics and eventually work in an area of cryptology, probably for the Department of Defense.

**Profile: Jacqueline Martin  
Class of 2005**

Jacqueline Martin is a senior Secondary Mathematics Education major. She is a graduate of Garden Spot High School in New Holland, PA, class of 2000. Jacqui is currently student teaching and plans to graduate from IUP in December 2004.

During her matriculation at IUP, she made a name for herself as an outstanding scholar/athlete. She has a 4.0 grade point average and made the Dean's List every semester, was awarded the Mathematics Department's Ida Z. Arms Scholarship for Excellence in Mathematics, and was a member of the honorary societies Kappa Mu Epsilon, Kappa Delta Pi, and Phi Kappa Phi. She is also a member of Fellowship of Christian Athletes.

Jacqui also excelled on the basketball court, where she was a member of the IUP women's basketball team. At the end of the 2003-2004 season, she was named as a first team CoSIDA Academic All-American and for the second year in a row, was placed on the PSAC West second team. Last year, Jacqui was a third team Academic All-American. She received the PSAC Top Ten award for academic and athletic

achievement for both of her last two seasons. Jacqui was also a recipient of the IUP Scholar Athlete Award. The capstone of her basketball career came during the 2003-2004 season when her scoring total surpassed 1000 points. Jacqui is only the fourteenth player to accomplish this feat at IUP. Also, she is only the ninth player to score 1000 points and collect 500 rebounds.

**Editor:** How did your interests in mathematics and basketball develop?

**Jacqui:** In elementary school I was much taller than my peers and self-conscious about my height. My parents wanted me to be confident with who I was and they thought that if I played basketball I might begin to appreciate my height. They signed me up for my school's basketball program in 3<sup>rd</sup> grade. My size got me immediate attention and my success increased my self-confidence. I went to camps and played on club teams that took me all over the country and allowed me to meet many new people. It was in middle school that I decided that I enjoyed basketball enough that it was something I wanted to continue after high school. I have learned so much from basketball and the successes and failures that I have experienced.

I have received high grades in math class ever since I can remember, but it was not until 8<sup>th</sup>

rewards of being a student-athlete. Playing on a team together and spending a lot of time with my teammates has given me friends that mean so much to me. I have been able to meet many people through athletics, and basketball has placed me in the local and state spotlight many times. I have learned lessons that will help me as I enter the teaching field and continue in life. I have been able to develop my leadership skills and I have learned how to work together with many different kinds of people. I have learned what it means to be a role model and coaching young girls has allowed me to gain valuable teaching experience. Basketball gives me one more way to relate to youth and show them that it is possible to be successful on and off the court. Playing basketball has taught me how to take criticism, how to endure success and failure and that hard work does pay off. These are all things that will help me throughout the rest of my life.

**Editor:** What are your career aspirations, both short and long-term?

**Jacqui:** My first goal is to be a high school or middle school math teacher. I want to get my master's degree and maybe eventually my doctorate. I am interested in the possibility of getting involved with school administration or teaching at the college level, but both of those would be in the far future. I am currently planning on teaching math in the public schools for a long time. I love what I am preparing to do and I cannot wait to have my own classroom.

---

### **We get letters....**

We want to thank the alumni who sent us the following, and we invite our readers to send us letters or e-mail messages for inclusion in the next edition of our newsletter.

---

Dear Dr. Buriok,

My PHEAA job starting in the fall of 1965 was working in Dr. McKinley's office, right after Indiana State College became IUP. He was tall, but nowhere near 6'8", if that helps. This brings back the memory of my first assignment – 10 cases of envelopes with (Indiana) State College in the return address that needed to be X'd out (on a manual typewriter) and University of Pennsylvania typed above. I can still type the words 'University' and 'Pennsylvania' without thinking!

Does anyone remember Dr. Simmons? His differential equations class began with "I began teaching at Georgia Tech in 1919." Dr. Simmons was amusing, always with a bit of shirttail hanging out and crooked glasses. He was amazing because he never forgot anything! Once he called roll on the first day of class he remembered everyone's name – even if we sat in a different spot! Years later when I returned for grad school and saw him in the hall, Dr. Simmons rbec/MCI1 0 emb,h year I'd taken his class, and the grade I got. This dear man had to be near or over 80 at the time!

I doubt if any one besides Dr. Simmons remembers me, as I worked a 25 hour/week PHEAA job and two 8-hour nights at a pizza shop on weekends, but I would love to hear from anyone who

might remember ol' Doc Simmons quirky ways.

After graduation, I worked at US Steel as a programmer/analyst, took 8 years off to be a full-time mom, and have been teaching adult education in Altoona since 1982.

Janet (Hunter) Schmittle, Class of '69

Hi Dr. Stoudt,

How are you? Great here! I just wanted to drop a little note to say how I was doing and ask a favor.

When I graduated from IUP, I accepted a job working for Computer Sciences Corporation as a Computer Programmer. I worked on programming the AEGIS Display System, one of five systems within the Navy's AEGIS Weapon System. It was a wonderful learning experience – I was challenged and overcame many obstacles to perform my job to the best of my ability. The hard work paid off when it was time for my review. On a five scale system, I was rated a two (with one being the best). I was told that I was performing at a level above a junior programmer and that being rated a two within a 6 month period was a wonderful accomplishment. However, even though I was "told" that I was doing great, I still had a lot of uncertainty with the position. The system was very large and complex and the work entailed programming in a C++ / UNIX based environment. I was told that as hard as I tried, I was never going to learn and understand every concept in the AEGIS Display System Department. That just didn't sit well with me. I did learn a lot but did not feel comfortable

for one day in that position. Yes, I had a Computer Science minor, and my minor focused on C++ but I felt that I did not master the concepts enough for my primary and sole job function to be a programmer.

I started looking for a new position in March and was offered a position with Lockheed Martin as an Engineering Planner Associate working on COTS Obsolescence and Diminishing Manufacturing Sources (DMS) Management for the AEGIS Weapon System. I was able to jump right into the position because of my prior AEGIS knowledge from CSC and now, two months later, am performing as a full functioning member of the DMS Team. This position is exactly what I wanted when I graduated! After adjusting in my new position, I have decided to return back to school for my Master's Degree. I am going to go to Drexel for a Master's Degree in Engineering Management. Fortunately, Lockheed Martin had a tuition reimbursement program so I am definitely taking advantage of that! Classes start near the end of August and I am very excited!

Also, I wanted to let you know that Lockheed Martin is in a huge hiring spree. Right now, we have over 800 requisitions open with more to come. I have attached two specific job descriptions for our department. One is for a Cost position and the other is for a Lifecycle DMS position for the new



Martin job website:  
<http://Impeople.external.Imco.com/careers/search/search.asp>

Tessa Polenik, Class of 2003

---

We received the following letter from  
Dr. Daniel A. Griffith, Professor of  
Geography in the Department of

### Nicholas Early - Class of 2004

Nicholas spent the spring semester of 2004 studying mathematics at the Independent University of Moscow in Russia. He is currently attending graduate school in mathematical physics at Duke University with a Charles H. Townes Teaching Fellowship.

---

### HOME PLaTe – the Successor to SEQuaL

by

Dr. Larry Feldman

Those of you who have been careful readers of Stright Lines are aware that the SEQuaL (Statistics Education through Quantitative Literacy) grant had been around for a long time. SEQuaL began in 1992 and died in 2003. However, we have a new \$475,000 grant to fill its place. It's called HOME PLaTe, which stands for Hands-On Mathematics Education for Pennsylvania Learning and Teaching. HOME PLaTe began in March 2004 and is planned to continue at least through 2006.

Our main goal is to help K-12 teachers find fun, hands-on, and mathematically sound ways to teach concepts from the high-stakes statewide tests. We believe that learning will be more powerful and effective if teachers provide interesting and mathematically sound hands-on data collection activities. We don't have to give in to the drill and kill mentality that

up to last year. The founding group was Jack Shepler (the “godfather” of SEQuaL), Fred Morgan, Ann Massey, Barb Lamberski, John Uccellini, and myself. It had sites at ten locations across Pennsylvania for K-12 teachers.

Francisco Alarcon and I wrote the HOME PlaTe grant with Lynnann Mocek (the previous program coordinator). John Uccellini is the evaluation specialist. HOME PlaTe differs from SEQuaL in that its focus is on improving learning of all five of the Pennsylvania mathematics anchors. SEQuaL had its origins in the teaching of probability and statistics.

We are very pleased to have Mary Jane Hodak as our new Program Coordinator. We hired her a few weeks before she retired from over thirty years teaching at Purchase Line South Elementary School. She is incredibly organized and amazingly successful at keeping Francisco and me organized. Except for Francisco and me, all the HOME PlaTe staff are IUP graduates, some with more than one IUP deSTjEt

because he offered me another opportunity to write about experiences in two cultures.

There is little worthy of comment here concerning my high school mathematics study. I remember only that I avoided any distraction to study just like other college bound students, at least I tried to. Even now many high school students who want to study at the college level in Korea do their best and in many cases their parents push them to the limits. An article in the NY TIMES detailed one Korean student's daily schedule and most Americans who read it found it unbelievable. I think the current study trends in South Korea will continue as long as this nation remains so densely populated, and people do not change their view toward education or life itself.

During my college years I had more social life than in my high school days. At that time, students could earn a bachelors degree without considerable effort. It was a good opportunity for me to experience many aspects of adult life and learn to function efficiently in Korean society. During that time I met my wife, whose major was also mathematics education. In my junior year I began to prepare for the graduate entrance exam, as I knew only eight among my class of forty mathematics education graduates could pass the exam and go on for further study. I was able to enter the masters program in mathematics, but beyond that would not be able to continue my study.

South Korea has a compulsory military service system. I took another exam to be an army officer and served for three years as a platoon leader, munitions officer, and a company commander.

After my discharge from the army, I continued my study but I wanted to study mathematics education in a program not available in Korea. At the U.S. Culture Center in Seoul I was able to gather information on U.S. graduate level programs in mathematics education. I decided to attend IUP, which attracted many foreign students at that time, partly due to a ten percent tuition discount for international students.

My first semester at IUP was a mixture of excitement and fear. It was not different when I came to IUP the second time as a visiting faculty member. When I began graduate study at IUP, everything was new and interesting. Time passed with the speed of an arrow. All the professors were generous and encouraged me throughout my M.Ed. program. At the end of the second semester, I received admissions letters from several Ph.D. programs, including the University of Georgia. I had only the summer term to complete the M.Ed. work. With special permission from the department, I took four courses that summer and earned my degree. As a Christian, I believe my Lord guided me with special attention during that time. Dr. Giambone, my advisor, recommended strongly that I attend the University of Georgia, which he had visited with his major professor. He had taught undergraduate courses there and also wrote his dissertation there.

My life as a graduate student in Athens, Georgia was different from graduate student life at IUP. All the professors and graduate students focused on research. I needed to shift my mode from class room oriented activities to research oriented activities.

Furthermore, my work assignment was quite different. At IUP I organized manipulatives and worked at a computer lab. My work assignment at UGA was supervising student teachers at public schools in the area.

Studying mathematics education at the doctoral level was challenging for me. To complete the program, I need to take coursework in mathematics, mathematics education, and research methodology. Also it took more than a year to prepare for the comprehensive exam, and another year and a half to complete my dissertation. When I was searching for a dissertation topic, I wanted to develop something that other researchers could not do. So I explored the relationship between Korean-English bilingualism and solving mathematics word problems. Later it was published in *Educational Studies in Mathematics* (1996).

After earning my Ph.D. from the University of Georgia in 1993, I returned to Korea and began work as an instructor. After six months I started teaching at Chunchon National University of Education as full time tenure-track faculty. After one year I moved to Korea University in Seoul where I had earned my undergraduate degree. This spring (2004) I became a full professor and associate dean of the graduate school of education. Currently I have 25 advisees at the graduate level, including five doctoral students. I continue to teach a full course load as well.

When I think of my second experience at IUP, it was valuable time for me and for my family. Returning to the place where I began my life in America was a

pleasure itself and it was a precious experience to know more about the department and people. I also learned a lot from the students as well as many friends I made while I was in Indiana. There were moments that demanded some level of patience, but these experiences because valuable lessons. I recall very clearly that I rehearsed my lesson plans so thoroughly each weekend that by Mondays they were memorized. It was much easier the second semester, but still it was challenging.

Now I would like to wrap up my personal stories and introduce the Korean education system, also compare it with the U.S. system. I wrote a similar article in *NCTM Dialogue* a few years ago. The main focus was on the high achievement of Korean students. It is true that Korean students perform better than American students in international mathematics competitions, but I do not think many Korean students do math with any meanings attached. They do know how to solve problems, because they practice similar problems over and over at school and private institutions, but they do not understand why they use the specific methods they are using, and meanings behind the manipulations.

There is a reason why Korean students spend many hours practicing mathematics. It is the significance of mathematics for every student's successful future. In an extremely competitive society such as Korea, parents believe that graduating from a prestigious university can be an important first step for their children's successful future. The belief is that finding jobs and succeeding in one's profession is much easier when a student

graduates from one of the top universities. And without excellent performance in math, it is not possible to get in those universities regardless of the intended major. To prepare themselves for acceptance at a prestigious university, students are encouraged by their parents to attend after-school programs that are operated by small private institutions. Alternately, many parents hire private mathematics tutors. Such lessons begin as early as elementary school or in some cases in kindergarten. Many parents spend a small fortune for their children's private mathematics lessons during their high school years.

After studying and teaching in the U.S., now I begin to see the differences between two cultures regarding the importance of mathematics in people's lives. In the U.S., mathematics is not a subject all students must do well, but in Korea all students must do well in math regardless of their prospective occupation. They just cannot attend a good college with poor math scores, and they begin life with disappointment at the freshman year of college. Also, in reality, they face all kinds of barriers in finding jobs and in promotion if they have not graduated one of the prestigious universities. The reason is simple. We are a very highly populated and educated, group-centered society. Once someone gets in those groups, the members of that group support him or her in many aspects, and this trend is prevalent in all areas, including university societies.

In short, Korean students study mathematics hard not because they prefer it to other subjects, but because they have no real choice. After teaching

math to American prospective elementary teachers for one year, I realized their mathematical abilities are typically not as good as those of their Korean counterparts. The reason does not lie in teaching methods, curriculum, or the quality of instruction. The whole of the circumstances surrounding students in the two cultures makes those differences. In that sense, I envy American society. Many people can have a good life without good math scores in the States, but in Korea it is not easy to do so.

---

### Archimedes

Dr. Phillip Ray came across an article titled "Archimedes' Engines of War" in the October 2004 issue of the magazine *MILITARY HISTORY* which he wants to recommend to our readers. Thanks to a 17<sup>th</sup>-century painting by Giulio Parigi depicting defenders of the island city of Syracuse using mirrors to focus the sun's rays and set Roman ships afire, most of us are aware of the legend of Archimedes applying scientific principles to warfare. This article describes some of principles actually applied by Archimedes in defending Syracuse from attack by the Roman general Marcus Claudius Marcellus in about 214 BC.

Thanks to Dr. Ray for making us aware of this interesting and informative article.

---