CURRICULUM VITA

CAROL L. STRONG

Personal Data

- Home Address: 224 Rosecliff Dr.
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  University of Alabama in Huntsville
  Huntsville, AL 35899
- Birthdate/Place: 5 November, 1961/Aga□a, Guam Is.
- Citizenship: USA

Education

- Bachelor of Science, Bachelor of Arts, 1982
  University of West Florida, Pensacola, FL
  Major field-of-study: Physics
  Major field-of-study: Mathematics
- Master of Science, 1988
  University of Alabama in Huntsville, Huntsville, AL
  Major field-of-study: Physics
- Doctor of Philosophy, 1994
  University of Alabama in Huntsville, Huntsville, AL
  Major field-of-study: Physics
  Dissertation: *Development of a Spaceworthy Faraday Rotation Ammeter for Plasma Current Measurements*

Professional Employment

Non-Academic

- Engineer II, 1983-1987
  Northrop Corporation
  Electro-Mechanical Division
  Anaheim, CA

Academic before Ph.D.

- High School Teacher, 1982-1983
  Pensacola School of Liberal Arts
  Pensacola, Florida

- Adjunct Instructor, 1983
  Pensacola Junior College
  Pensacola, FL

- Teaching Assistant/High School Teacher, 1986-1987
  UAHuntsville and Butler High School
  Huntsville, AL

- Research Assistant, 1987-1990
  University of Alabama in Huntsville
  Huntsville, AL 35899

- Research Assistant, 1990-1994
  University of New Hampshire
  Durham, NH

Academic since Ph.D.

- Lecturer, 1993-present
  University of Alabama in Huntsville
  Huntsville, AL 35899

TEACHING
ACCOMPLISHMENTS & HIGHLIGHTS

Executive Summary

When I first began teaching here at UAH, I was assigned all introductory courses such as Exploring the Cosmos I & II and the General Physics with Calculus I, II, & III series. It has taken a number of years, but my skills at teaching have now been recognized by five successive Physics Department Chairmen, two successive Deans, various student organizations and literally thousands of students. Along with this recognition has come the opportunity to teach a wide variety of upper- and lower-level courses both in and outside of my forte, plus a course geared to teaching teachers how to teach science using inquiry. I am one of the few in this department with experience teaching so many of the core curriculum courses and a number of the specialty courses.

I am very happy to have been allowed to teach such a wide variety of subjects to so many interesting students. I like the challenge of teaching a new or difficult course, setting up lectures, working example and homework problems, identifying difficult subject areas and presenting demonstrations. I also like the challenge of teaching a course that I know very well, since I must constantly work to keep the subject fresh for myself and for the students alike.

Statement of Teaching Philosophy

My teaching philosophy hinges, as it must, on the student. The student must want to learn or nothing I do in or out of class will make any difference. It took me several years of teaching before I didn't feel hurt when students failed a course. I finally realized that, except for very few, the students failed because they chose to fail.

Barring any desire for failure, I find I can teach any student that wants to learn. As a teacher, my biggest job is to figure out how that student learns and teach the subject in that fashion. Some may learn by hearing me discuss a concept, others by watching a demonstration, still others purely by presentation of mathematical formulations and others just need to see a concept presented multiple times in multiple ways. Since, in a large group of students, all types of learning will be represented, I must, as much as possible, present material in ways geared to multiple learning styles so that I connect to the entire group. I must also be amenable to answering questions, possibly simply restating what was just presented as an answer, in order to fill learning needs that I didn't anticipate.

In my large lecture classes, it is very difficult to fulfill every student's learning need. I try to take advantage of several "tricks" to help.

1. While showing the demonstrations and simulations to illustrate physical concepts, I pose questions about the outcomes that will indicate to me the extent of their understanding.
2. I require the students to work with me in class to solve example problems from the book. They are encouraged to discuss with their neighbors how to attack the problem, they offer ideas to me about the next step in the problem working algebra and calculus for themselves and finally they respond with dimensional and directional analysis of the answers.
3. Although students listen to me and may think they understand me, they are more likely to secure ideas correctly if they talk to another student at their same level without any peer pressure. I therefore allow discussion during their "clicker quizzes" as these quizzes promote serious participation.
4. I do not use power point presentations. I store "skeletons" of my lecture notes on ANGEL for the students to print off ahead of lecture. In class, I put these "skeletons" up on the computer projector and use the Interwrite SchoolPad system to add notes to these "skeletons" in "chalk talk" style. The students get to see diagrams directly from the book, but modified by me as we talk. They see the titles of sections that I intend to cover so they can read the background before class. I choose the

"chalk talk" style because I believe that if I can't write it quickly, there is no way I should expect the student to. This type of presentation allows the student time to process what is being presented and ask questions about what they do not understand.

5. I cover in detail the theory in the text that I believe is difficult for most students to grasp by purely following the mathematical formulations, but I usually combine this theory into working a problem which seems to cement the concepts best.

Most importantly, the students are actively involved in the lecture. Most surveys say that students are only attentive in the first and last 5 minutes of a lecture and approximately 5 minutes in the middle of the lecture. That means 40 minutes wasted if I don't keep them involved. Also, if students are involved in the lecture, they are actively learning, i.e. they have a vested interest in the material presented and are processing that material with other material that they personally have experience with. This type of active learning is very effective.

Finally, I find that, even with all of my classroom tricks, there are still students that have difficulty absorbing concepts and relating those concepts to problem solving. I believe that one of my strongest attributes is that of availability. I have a large number of office hours open to my students. I am also available by email and by phone throughout the day. Since the availability of tutors in the Success Center has helped alleviate demands on my time by some less needy students, I am able to concentrate on the few that desperately need my help and I am able to quickly determine the source of their difficulty. The students respond very positively to this personal touch, especially when they are enrolled in a class of over 230.

Teaching Awards & Honors

- Nomination for the CASE U.S. Professor of the Year, 2002 and 2003

- SGA Most Outstanding Faculty Award, College of Science, 1996, 2001-2, 2002-3, 2003-4, and 2005-2006
- Who's Who Among America's Teachers, nominated by Dustin Nix, 2004
- Who's Who Among America's Teachers, nominated by Holly L. Searcy, 2005
- Alpha Lambda Delta Professor of the Year, 2005, book placed in library
- Member Alpha Lambda Delta, 4/2/06
- Member Omicron Delta Kappa, 10/08
- Teaching Excellence Award, College of Science, 2010, $500
- Society of Physics Students award for "Best Damn Physics Teacher", 2012

Courses Taught

Over the last twenty years, I have taught all but a select few of the core undergraduate physics courses and several of those in the specialties. I have listed these courses with their semesters, texts and enrollment bounds below. I did not specify SIE scores for any given course, but no scores fell below a 90 and most were above 95. I also did not indicate the edition of the text used in the course, as the editions changed while I was still teaching the course; suffice it to say that I used the current edition for that year.

- Fall 1995-Fall 1999 (Fall 1999, 2 sections), **AST106** Exploring the Cosmos. Enrollment: 71-126.

  Description: Introduction to astronomy with emphasis on quantitative aspects of physical phenomena occurring in the universe. Motions of celestial bodies, development of astronomy, gravity and motion, light and telescopes, properties of gases and radiation, Earth and Moon, eclipses, survey of the solar system. Text: *Universe* by Kauffman

- Spring 1996-Spring 2000, **AST107** Exploring the Cosmos II. Enrollment: 37-40.

  Description: Continuation of AST106. The Sun, stars and stellar evolution, white dwarfs, neutron stars, and black holes, binary stars, the Milky Way galaxy, galaxies, quasars and other active galaxies, cosmology, life in the universe. Text: *Universe* by Kauffman

- Fall 2003-2008, **PH110** Frontiers in Science. Enrollment: 20-40 and **rising every year**!

  Description: Introduction to the frontiers and problems facing modern physical science today. Working physicists and scientists from local companies, national labs, the Redstone Arsenal and the University present the role and impact physics plays in their jobs. This course exposes the student to such diverse topics as modern cosmology, relativity, quantum theory, industrial physics, biophysics, complex modeling, medical physics, atmospheric physics, etc. The importance of seeing the diversity of physics applications and the possible future employment opportunities serves as a motivator for mastering the problem solving and conceptual skills that lie ahead in the student's undergraduate studies. Text: *None*

- Fall 1995-Fall 1998, Spring 2000-2014, **PH111** General Physics with Calculus I. Enrollment: 70-265.

  Description: For science and engineering students. Phenomenological and quantitative in nature with emphasis on understanding basic ideas of physics and ability to apply these ideas to specific problems. Vectors, Newtonian mechanics, energy, simple harmonic motion, statics, fluids. Text: *Fundamentals of Physics* by Halliday, Resnick and Walker

- Spring 2008, **PH111** General Physics with Calculus I – Studio Physics. Enrollment: 32.

Description: For science and engineering students. Phenomenological and quantitative in nature with emphasis on understanding basic ideas of physics and ability to apply these ideas to specific problems. Vectors, Newtonian mechanics, energy, simple harmonic motion, statics, fluids. Text: *Fundamentals of Physics* by Halliday, Resnick and Walker and online work using Physlets by Wolfgang Christian and Mario Belloni at http://lpa.feri.uni-mb.si/Pedagosko_delo/PhysletPhisics/contents/start.html

- Fall 1995, Spring and Summer 1997 & 1998 (Spring 1998, 2 sections), Spring 1999, Fall 2000-2003, 2005-2013, **PH112** General Physics with Calculus II. Enrollment: 70-245.

  Description: Continuation of PH111. Heat and thermodynamics, basic electricity, electric and magnetic fields, circuits. Text: *Fundamentals of Physics* by Halliday, Resnick and Walker

- Fall 1996-1998, Summer 2003, 2010, 2011 and 2012, **PH113** General Physics with Calculus III. Enrollment: 20-98.

  Description: Continuation of PH111 and PH112. Wave motion, optics, relativity, quantum effects, atomic and nuclear structure and elementary particles. Text: *Fundamentals of Physics* by Halliday, Resnick and Walker

- Spring 1996, 1997, **PH205** Mathematical Methods for Physicists. Enrollment: 15-18.

  Description: Application of analytical techniques to solve problems in physics. Complex exponentiation, Fourier series, matrix methods, differential equations and vector calculus applied to problems in mechanics, electricity and magnetism, optics and thermodynamics. Text: *Mathematical Methods for Physicists* by Mary Boas

- Spring 2000-2006, **PH305** Mathematical Methods for Physicists. Enrollment: 18-25.

Description: Application of analytical techniques to solve problems in physics. Complex exponentiation, Fourier series, matrix methods, differential equations and vector calculus applied to problems in mechanics, electricity and magnetism, optics and thermodynamics. Text: *Mathematical Methods in the Physical Sciences* by Mary Boas

- Fall 1999-2000, **OPT341** Geometrical Optics. Enrollment: 3-7.

  Description: Introduction to the concepts and principles of geometrical optics. Rays and wave fronts, Fermat's principle, Snell's law, dispersion, systems of plane mirrors and prisms, paraxial rays, paraxial design, thin lenses and thick lenses, introduction to aberrations and ynu ray tracing. Text: *Introduction to Optics* by Pedrotti and Pedrotti

- Spring 2000-2001, Spring 2003, **OPT342** Physical Optics. Enrollment: 3-7.

  Description: Electromagnetic waves, simple harmonic motion, superposition of waves, interference of light, Young's double slit experiment, diffraction gratings, diffraction, speed of light, light sources and their spectra, absorption and scattering, dispersion, polarization. Text: *Introduction to Optics* by Pedrotti and Pedrotti

- Fall 2000-2003, Fall 2005, 2007, 2009, 2011 and 2013 **PH337** Electronics. Enrollment: 6-15.

  Description: Introductory course for all science students. Basic AC and DC circuits, operational amplifier circuits, power supplies, digital logic and their use in laboratory instruments. Text: *Principles of Electronics* by Fortney

- Spring 2005-2014, **PH301** Intermediate Mechanics. Enrollment: 14-27.

  Description: Review of Newtonian mechanics, natural and driven oscillations, variational calculus and Lagrange's equations, application to central force motion, rigid body rotation and

coupled oscillators. Text: *Classical Dynamics of Particles and Systems* by Thornton and Marion

- Fall 2006, 2010 and 2012, Spring 2014 **PH431** Introductory Electricity and Magnetism I. Enrollment: 3-30.

  Description: Basic concepts of electrostatics, electric potential theory, electric fields and currents, field of moving charge including relativistic treatment, magnetic fields, Maxwell's equations. Text: *Introduction to Electrodynamics* by David J. Griffiths

- Spring 2007, **PH432** Introductory Electricity and Magnetism II. Enrollment: 17.

  Description: Continuation of PH431. Development of Maxwell's equations for time-varying fields, basic concepts of AC circuit theory, electric fields in matter, magnetic fields in matter, modern applications. Text: *Introduction to Electrodynamics* by David J. Griffiths

- Summer 2005-2007, **BYS491** Inquiry-Based Science. Enrollment: 5-7.

  Description: Inquiry-based science techniques used to teach the physics of light (Carol Strong) and micro- to macro-biology (Bruce Stallsmith). Light subjects energy transfer, ray tracing, reflection, refraction, dispersion, diffraction, polarization. Students are education students advancing their knowledge of science and learning how to teach in an inquiry style. Text: *Light* by Smithsonian/The National Academies, National Science Resources Center

- Spring 2012, **PH499** Pracitcum Mentor for William Christopher West. Enrollment: 1. SIE Scores: NA

  Description: Mentored William Christopher West for his PH499 Practicum research. We only have 3 Digital Experiment boards for the PH337 class which is not enough to support the number

of students in the class. Using his knowledge of electronics gained in PH337 and his skills from his minor in computer science, Chris prepared a computer simulation to replace the PH337 Digital Experiment boards. Future students in PH337 will now perform their digital experiments with this simulation. Text: *Science First 10-325 Logic Lab and 10-320 Logic Lab Kit with supporting manuals.*

Graduate Students Supervised

- **Amy Bandas**, Master's Thesis Committee, "*EUV and Soft X-Rays from Active Galactic Nuclei (AGN)*", M.S. Physics (2001)

Advising Activities

The Department of Physics mandated many years ago that each physics student must meet with an advisor every semester. With this policy, we find very few of our students do not have the required courses and GPA's for graduation; our students are introduced to possible curriculum choices they may not have considered on their own; and many of our students take far more physics courses than are actually required by our flexible curriculum.

Although I have some help on occasion (particularly after my stroke in spring '08) from Drs. D. Gregory, R. Miller and A. Elsamadicy, I am the central advisor for all undergraduate students. With our numbers growing every year, I have seen as few as 20 students and as many as 120 students in a semester. My duties to these students include, but are not limited to:

- Advisor for all physics undergraduate students (50-120 students), including those with specialties in optics, applied/theoretical, astrophysics, engineering, environmental/atmospheric science and secondary education. I

meet with each student at least each semester to check on curriculum status, determine registration needs, sign course repeat and Pass/Fail forms and, on occasion, suggest help from the University Counseling Center and Student Career Development Services.
- Create Program of Study for each physics undergraduate student upon designation of physics as major or minor.
- Prepare appropriate engineering cognates for Physics with Engineering students. (See: Curriculum and Program Development)
- Create Program of Study changes as necessary.
- Audit graduation applications of all physics undergraduate students.
- Perform BANNER overrides for undergraduate priority and normal registration as necessary. Although I am rarely teaching the entire summer, I do meet with students online and/or in person to cover priority registration issues and advisement in summer as needed.

Curriculum & Program Development

I have been the lead advisor in the physics department for my twenty years and have, therefore, been involved in many curriculum and program changes. Listed below are some of those chances with minor details.

1. Cognate and Specialization Curricula for MAE, ME and EE, 2009-11 catalog: There have been only a few students that have chosen a Physics Program of Study (POS) with specializations for MAE, ME and EE and even those have had diverse interests. Therefore, each POS was evaluated on a student-by-student basis allowing freedom for the student, but making sure of a consistent path through a chosen concentration.

2. Online Program of Study Forms: I have worked closely with Drs. Dan Rochwiak and Lior Burko, Mr. Zeke Aguilera and Mr. Andrew Peters and Ms. Morgan Lewis to devise online CAPP forms

for Physics POS's that reflect the new 2011-13 catalog. These forms are now available for advisors across campus to access.

3. Technology Development, PH111-113: Since 2006, I have been using the Interwrite Learning SchoolPad and Interwrite Learning Personal Response System (PRS) in my PH111-113 courses. Also, I have worked with Drs. Bernhard Vogler, Mary Setzer, Dan Rochwiak, and Ms. Lanita Presson to evaluate a new personal response system to replace the PRS system for the College of Science and the College of Engineering. With the SchoolPad, the personal response system from Turning Technologies and our student interface system ANGEL, I have streamlined the process of creating presentations for my students that make learning in extremely large classes as efficient and effective as possible.

I have trained several professors to use the SchoolPad system, among them: Drs. Lingze Duan, Seyed Sadeghi, Fathallah Alouani-Bibi, Ross Burrows, David Landry and Mr. Aaron Arthur. All have had good success. Also, Drs. John Fix and Jacob Heerikhuisen have taken advantage of the personal response system clickers in their classes.

It is my hope to see more of our instructors taking advantage of this type of technology particularly in the lower level courses such as PH101, 102, 100 and AST106 and107.

4. Astrophysics Curriculum: (2007-9, 2009-11 catalogs) With the goal of strengthening the astrophysics curriculum within the department, I helped Dr. Richard Miller implement a new curriculum path that including two new courses, general relativity and particle physics, and the modification of an existing cosmology course. In order to include these courses, the curriculum path and options of both undergraduates and graduates were modified to ensure that students would have the possibility of taking the courses in the proper order. The result was a unified approach to the astrophysics curriculum that would strengthen and broaden the students' experience.

Recently, PH474 General Relativity was removed from the undergraduate program. Students wishing to take this course can take it as a special topics course whenever PH574 is offered.

5. Advisement/Curriculum Committee: Since I have been advising the undergraduates for so long, I am extremely familiar with the curriculum and its possibilities. I have supported 5 department heads during any catalog and curriculum changes. I help check for any errors in pre-req's/co-req's, textbook choices and issues associated with when courses can be offered and instructor assignments. I work closely with the College of Science advisors Morgan Lewis, Jennifer Bradley and Dr. Dan Rochwiak to make sure students are prepared for graduation as planned.

6. Studio Physics: With the completion of the new Science Building in Fall 2007, I became the spearhead for implementing the new Studio Physics style of teaching at the 100-level for the physics department. Dr. Elsamadicy ran the first informal test of this method in Summer 2006 with good success, but had difficulty working within the limitations of the class time schedule and the physical layout of the classroom. The Physics Department was informed that the University must be convinced without a doubt that this style of teaching is best for our students and for those we support in other departments. The Studio Physic Committee, Drs. Elsamdicy, R. Miller and I, decided that the best way to make sure that all variables are removed from the comparison of the classic lecture style and the Studio Physics style is for one instructor to teach both courses contiguously. As usual, I volunteered. I taught the Spring 2008 PH111 lecture and Studio Physics courses. Since the only difference between the courses should be teaching method, the plan was to make the following equal in both:

- Skills Tests: National skills tests will be given to students in both courses at the beginning and end of the semester.
- Timing: each course covered material at the same pace.
- Content: each course covered the same content.
- Homework: students in each course were given the same homework to work and with the same due dates.

- Exams: students in each course took the same exam at the same time in the same room.
- PRS: Personal Response Systems were used in both courses to track attendance and content knowledge.

Also, the Studio Physics Committee assessed textbooks, materials, activities and TA requirements for the Studio courses.

Although I suffered a stroke at the very end of the Spring semester of PH111 and PH112 Studio was cancelled due to budget cuts, I think I have good insight into what we can expect if we were to replace the usual PH111-113 courses with Studio-style courses.

- The Studio-style of teaching requires a tremendous amount of effort by the instructor both in preparing materials and TA's for class time and in planning the flow of activities during class time. This amount of effort would not be reduced greatly upon teaching the course a second time and, due to its interactive nature, I strongly believe that there are few teachers that can teach successfully in this style.
- No more than 30 students should be allowed in a Studio-style course section.
- The students in the Studio-style course were extremely happy with their experiences; however, their skills and knowledge did not appear to differ appreciably from those found in the usual lecture style course.
- The online Physlets were as useful in securing the information with the students as was working example problems from the text with the lecture students. Both approaches involved the student in their own learning process which is necessary for learning.
- Incorporating the laboratory experience into the Studio-style course would ultimately be much more difficult than just "taking a break from the lecture to work the lab". The laboratory manuals would have to be re-written completely with the Studio-style of lecturing in mind.

4. Online Homework: I am the course administrator for all online homework using the WileyPlus system which supplements the PH111-113 Halliday, Resnick and Walker book and the PH101-102 Cutnell book. Having the students do homework online in these 5 courses has had a number of expected and unexpected advantages.

- We relieved the graduate TA's from the drudgery of grading thousands of homework papers every semester and, as a consequence gained a ready supply of qualified tutors for those courses. The Physics Success Center has been a wonderful addition to our department and has become a model for other departments.
- Because we now have more tutors available, instructors are released to work only with students that desperately need their help.
- Students get immediate feedback about their homework with the online system, rather than waiting as much as a week for homework to be returned to them.
- Students are more adept at dimensional analysis than without the online system.
- Since the gradebook for WileyPlus is so easy to handle, instructors previously reticent about ANGEL have started embracing ANGEL as a means to communicate grades, syllabi, course announcements and calendar entries to students.

Although other online homework systems exist, I found it difficult to get response from the representatives trying to sell the system to us. As a consumer, I'm hesitant to buy any product that I have difficulty getting support for as usually that support is worse after purchase. The Wiley representatives have supported me fully since I began using their text in 1993 and their software in 1998 as a beta tester and, even now, respond to my requests for help usually within 2 hours! I see no compelling reason to switch texts or online homework systems.

Educational Related Proposals

Every semester, I write recommendations for a large number of students from my courses. Although not all of these students receive the scholarships and internships that they would like, and some don't tell me what they do receive, here are some examples of the results for the last 8 years.

Title: "**Implementation of Tutorials in Large Introductory Physics Courses, A Step Toward Studio Physics**"

Role: **Co-Invesitgator** with Abdalla M. Elsamadicy

Amount: Mini Grant, $10,199.00

Period: 2005

Title: None

Role: **Co-Investigator** with Abdalla M. Elsamadicy

Amount: Support for 4 REU physics students – Lisa Kodgis, Andrew Sims, Carl Blaksley, Ross Cortez

Period: Summer '06

Title: "**High Temperature Multi-layer Ceramic Composite Coatings**"

Role: **Co-Investigator** with Abdalla M. Elsamadicy and in collaboration Alabama A&M. Poster published by student supported, Andrew Sims, "*Characterization of W_1C_X Electrical Contacts on Silicon Carbide using RBS Channeling and Raman Spectroscopy"*

Period: Fall 2006

Title: "**Peer Tutoring in 1st Year Physics Courses**"
Role: **Co-Investigator** with Abdalla M. Elsamadicy
Amount: $3200
Period: Fall 2006

Title: **Alabama Space Grant Scholars**
Role: Recommendation

Amount: $1000 @ for Lisa Kodgis and Simon Porter
Period: Academic year 2006-2007

Title: **USRA Scholarship**
Role: Recommendation
Amount: For Ashley Campbell
Period: Academic year 2009-2010

Title: **Alabama Space Grant Scholars**
Role: Recommendation
Amount: $1000 @ for Ashley Campbell, Christian Bonnell
Period: Academic year 2009-2010

Title: **Delta Zeta Scholarship**
Role: Recommendation
Amount: $1000/yr. for Ashley Campbell
Period: Academic year 2009

Title: **Universities Space Research Association**
Role: Recommendation
Amount: $1000/yr. for Ashley Campbell
Period: Academic year 2009

Title: **SCI systems Inc. / Olin B. King Scholarship**
Role: Recommendation
Amount: $4000/yr. for Ashley Campbell
Period: Academic year 2009

Title: **UAHuntsville Alumni Association Scholarship**
Role: Recommendation
Amount: $3000/yr. for Ashley Campbell
Period: Academic year 2009

Title: **Professor Elmer E. Anderson Scholarship**
Role: Recommendation
Amount: $1000/yr. for Ashley Campbell
Period: Academic year 2009

Title: **Goldwater Scholarship Nominee for UAHuntsville**

Role: Recommendation for Christian Bonnell
Period: Academic year 2009-2010

Title: **Seyfert Price Fellowship, Case Western**
Role: Recommendation
Amount: $4800 stipend and 10 wk. fellowship for Lauren Kahre
Period: Academic year 2010-2011

Title: **NCMR Scholars Program Grant**
Role: Recommendation
Amount: $10,000 for Lauren Kahre
Period: Academic years 2009-2011 and 2010-2011

Title: **Science and Engineering Scholarship from Von Braun Astronomical Society**
Role: Recommendation
Amount: $3000 for Eric Zirnstein
Period: Academic year 2010-2011

Title: **HASBAT Scholarship**
Role: Recommendation
Amount: $1500 for Akito Kawamura
Period: Academic year 2010-2011

Title: **NASA REU**
Role: Recommendation
Amount: offered, but student declined due to other obligations; for Josh Mosier
Period: Summer 2011

Title: **USRA (Universities Space Research Association)**
Role: Recommendation
Amount: $9000 for William Christopher West
Period: 1/18-7/29/2012, plus continuing work at $12/hour

SERVICE ACCOMPLISHMENTS & HIGHLIGHTS

Service to the Department

- 1997-present: Advisor, all undergraduate physics students
- 1997-2008: Chairman, Undergraduate Curriculum Committee; Present: Consultant for Undergraduate Curriculum Committee
- 2004-2010: Chairman, Teaching Assignments Committee; Present: Consultant for Teaching Assignments
- 2004-present: Course Administrator, WileyPlus online homework for PH111-113 and PH101-102
- Spring, 2004, 2007, 2009: Re-writes of undergraduate 2005-2007, 2007-2009, 2009-2011 catalogs
- Spring, 2004: Attended sample class given by every instructor candidate
- Summer 2004: Member, SACS Accreditation Committee
- Summer 2005- 2008: Member, Strategic Planning Committee
- Fall, 2006-present: Chairman, Studio Physics Committee
- Fall, 2006: Evaluation of part-time instructors; Present: Available as needed
- Summer, 2006: Member, Minority Undergraduate Recruitment Committee – working with several others to try to get funds for recruitment of minority and non-minority undergraduate students

- Summer, 2012: Supported Drs. Ross Burrows and Brahma Dasgupta preparing course materials (syllabi, notes, solutions, URL links, Calendars, online homework, grade sheets, etc.), teaching and submitting grades for the PH111 and PH112 courses in Summer 2012. Dr. Elsamadicy was unavailable for his normal role as instructor due to a heart attack and needed help taking over these courses. I was the only instructor available to help Ross and Brahma step in to help.

- Fall, 2012: Provided answers to outreach questions that are most asked by visiting students about UAHuntsville and Physics. These answers were compiled to modify the Physics Department's brochures

- Fall, 2012: Represented Physics department to the national (NCATE) and state (ALSDE) accreditation team visiting UAHuntsville to determine Education accreditation.

- Fall, 2012: Prepared and administered course examination to "test a student out of" PH112.

- Fall, 2012 and Spring, 2013: Supporting Brittani Searcy, a Space Grant Student, with Outreach to a Title 1 school, Brookhaven Elementary in Decatur, AL. I am providing lesson plans for one of her visit days along with materials for experiments (Meteors and meteorite collection) and I'll join her on that day for the presentation and experiments.

- Fall, 2014 to present: Once again a member of the undergraduate curriculum committee.

Service to the College

- Summers, 2005-2007: Teamed Instructor for BYS 491 Special Topics in Biological Sciences, The Physics of Light; $40,000 grant by The Boeing Corporation.

- Fall, 2006-Spring, 2009: Member, College of Science Academic Facilities Committee; recommendations to the dean on policies and planning regarding instructional facilities, instructional laboratory equipment, audiovisual equipment for classrooms, faculty/staff computers and other academic facilities issues.

- Summer, 2012: Supported the viewing of the transit of Venus across the Sun on 6/5/12 by running one of 7 scopes and discussing the view with the visitors. Most visitors were College of Science students, faculty and their families, but others just "stopped by" when they saw the crowd. All enjoyed themselves.

Service to the University

- Fall, 2004: UAHuntsville Foundation Distinguished Teacher Award Lecture Series – presented "*Engaging Students in the Learning Process*"

- Fall, 2005: UAHuntsville Foundation Distinguished Teacher Award Lecture Series – reviewed Dr. Gregory's lecture "*Teaching at a Research University*" before he presented it to the faculty.

- Summer, 2006, 2007: Member, Meet the Faculty Panel – Met with incoming freshmen during orientation.

- Summer, 2012: Appointed Member of Honors Faculty

Service to the Professional Community

- March, 2005: Von Braun Astronomical Society – "*Nature Optics*"

- Summer 2005 & 2006: Workshops for *Exploring Space, the Classroom Connection* – sponsored by U.S. Space and Rocket

Center, UAHUNTSVILLE and Marshall Space Flight Center. "*Light Spectra, Waves and Astrophysics*". @ $300 Honorarium

- Summer 2007: Workshops for *Exploring Space, the Classroom Connection* – sponsored by U.S. Space and Rocket Center, UAHUNTSVILLE and Marshall Space Flight Center. "*Light Spectra, Waves and Astrophysics: Observations and Measurements*" and "*Asteroids, Meteors and Micrometeorites: Observations and Measurements*". $600 Honorarium

- Summer 2008: Workshops for *Exploring Space, the Classroom Connection* – sponsored by UAHuntsville and Marshall Space Flight Center. "*Light: Geometric Attributes, Pinhole Viewers and Telescopes*" and "*Asteroids, Meteors and Micrometeorites: Observations and Measurements*". $600 Honorarium

- Summer 2009: Workshops for *Exploring Space, the Classroom Connection* – sponsored by UAHuntsville and Marshall Space Flight Center. "*Light: Geometric Attributes, Pinhole Viewers and Telescopes*" and "*Asteroids, Meteors and Micrometeorites: Observations and Measurements*". $600 Honorarium

- Summers 2009 and 2010: Society of Women Engineers (SWE) North Alabama (NAL) section Volunteer. Panelist and speaker to teachers and parents interested in guiding their female students and daughters into science related fields.