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## **I. FORWARD**

This year saw the Department again on a course that brought it more visibility and professional stature, while promoting internationalization and interdisciplinary study.

Scholarly output continues to grow, as does external funding of faculty research. While the number of physics majors decreased marginally from last year, total student credit hours taught by Department faculty held firm and is expected to increase as physics laboratories at all levels are outfitted with better and more modern instrumentation. Undergraduates continue to be afforded regular opportunities to engage in research both on and off campus under the direction of Physics faculty, and a new international initiative paves the way for selected students to study abroad during the summer months.

As part of its celebration of the World Year of Physics 2005 to recognize the achievements of Albert Einstein exactly 100 years ago, the UNCW Physics Department hosted a visit by relativist Professor Deborah Konkowski of the U.S. Naval Academy. On the evening of April 21, 2005 Professor Konkowski gave a public lecture and followed this with a more specialized afternoon seminar on April 22.

Following on the World Year of Physics theme, the UNCW Summer Physics Program in Germany is a new two-month program, in cooperation with the University of Ulm, for students interested in Physics and German. Ulm is the city of Einstein's birth, and the University of Ulm is a leading German university in the sciences, mathematics, and engineering. For the summer of 2005, three students are participating; they attend classes in beginning German and advanced Physics laboratory, earning ten academic credits.

While this year marked Professor Marvin Moss' entry into phased retirement, his efforts have not measurably diminished. The very successful and ongoing CORMP Program directed by Dr. Moss is a model of interdisciplinary cooperation. CORMP combines components of physical oceanography, marine biology, sediment transport, optical oceanography, chemical oceanography, and modeling to form an integrated coastal ocean observing system that provides critical baseline and monitoring data to the region. No fewer than ten UNCW faculty from the Departments of Biological Sciences, Earth Sciences, and Physics have a portion of their research funded by CORMP, which itself is the largest single-grant funded research effort ever at UNCW.

Dr. Timothy Black was awarded tenure and promoted to Associate Professor effective August 1, 2005. Dr. Black's seemingly boundless energy and unselfish willingness to put Department concerns foremost has made him an especially valuable colleague. And lastly, a nationwide search for a physical oceanographer came to a successful conclusion with the recent hiring of Professor John Morrison. Dr. Morrison was professor of Marine, Earth and Atmospheric Sciences at North Carolina State University. Over the span of 25 years in the profession he has built a reputation as a world-class physical oceanographer. We are very fortunate to have him as the Department seeks to strengthen its ties with the UNCW Center for Marine Science and broaden its undergraduate course offerings. Can an M.S. degree program in physics be far behind...?

Curt A. Moyer  
July, 2005

## II. ORGANIZATION

### A. Staff

Frances C. Brown, Department Secretary

#### Professors

Moorad Alexanian	Ph.D. Indiana University, 1964
Brian F. Davis	Ph.D. North Carolina State University, 1982
Marvin K. Moss	Ph.D. North Carolina State University, 1961
Curt A. Moyer	Ph.D. State University of New York at Stony Brook, 1971
Edward A. Olszewski, Jr.	Ph.D. University of North Carolina at Chapel Hill, 1976

#### Associate Professors

Frederick M. Bingham	Ph.D. University of California, San Diego, 1990
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#### Assistant Professors

Timothy C. Black	Ph.D. University of North Carolina at Chapel Hill, 1995
Liping Gan	Ph.D. University of Manitoba, Winnipeg, Canada, 1998

### B. Departmental Committees for 2004-2005

#### Lab Development Committee

L. Gan, chairperson  
T. Black  
B. Davis  
E. Olszewski

#### Curriculum Committee

C. Moyer, chairperson  
F. Bingham  
L. Gan  
M. Moss

#### Colloquium Coordinator

M. Alexanian

#### Physical Oceanography Search Committee

F. Bingham, chairperson  
M. Alexanian  
M. Durako (Biology)  
R. Kieber (Chemistry)  
L. Leonard (Earth Science)  
M. Moss  
C. Moyer

#### SPS | Sigma Pi Sigma Advisor

T. Black  
C. Moyer

#### Computing Resources Coordinator

E. Olszewski

#### Faculty Senate Representative

T. Black

#### Academic Advising

M. Alexanian  
B. Davis

#### Library Representative

F. Bingham

### III. FACULTY

#### A. Areas of Specialization

##### 1. Atomic Physics

Charge exchange in atomic collisions; response of atoms to intense electromagnetic fields; atomic structure studies; autoionization.

Professors Alexanian, Davis, Moyer

##### 2. Marine Sciences

Large-scale physical oceanography; observational oceanography; physics of the oceans.

Professors Bingham, Moss

##### 3. Nuclear and Particle Physics

Low energy few-nucleon systems; hypernuclear physics; quantum chromodynamics; string theory.

Professors Black, Gan, Olszewski

##### 4. Physics Education

Multimedia-based techniques for teaching introductory physics; general physics pedagogy.

Professors Black, Moyer

#### B. Honors and Awards

1. Professor Marvin Moss was appointed to a second 3-year term on the Board of Directors of the North Carolina Biotechnology Center in the Research Triangle Park. He is also a member of the Board's subcommittee on Science and Technology.

#### C. Grants and Gifts (awarded 2004-2005)

Agency and Investigators	Title / Subject	Amount
National Oceanic and Atmospheric Association <b>Marvin Moss</b> (with others, including <b>Bingham, F.</b> )	<i>"A Collaborative Coastal Ocean Research and Monitoring Program (CORMP) 2004-2005"</i>	\$2,325,084
ITSD Infotech Program Award <b>Frederick Bingham</b>	<i>"Physics 105 Laboratory Technology Enhancement"</i>	\$3690
National Science Foundation <b>Timothy Black</b> (with 2 project co-PI's)	<i>"Neutron Interferometry and Neutron Schrodinger Wave Optics"</i>	\$110,873 (for FY 2005)
National Science Foundation <b>Liping Gan</b>	<i>"Precision Measurements of Electromagnetic Properties of the Light Pseudoscalar Mesons Via the Primakoff Effect"</i>	\$57,934 (supplement)

Research Corporation <b>Liping Gan</b>	<i>“Precision Measurements of Electromagnetic Properties of the Light Pseudoscalar Mesons”</i>	\$14,055 (for FY 2005)
Jefferson National Laboratory <b>Liping Gan</b>	<i>“Measurement of the neutral pion lifetime at Jefferson Lab”</i>	\$5,925

#### D. Proposal Submissions (2004-2005)

1. **Bingham, F.** (with P. Schaefer, Vortant Technologies), *“Expendable Littoral System for Naval Special Forces”*, to Navy STTR; amount requested: \$30,476 (pending).
2. **Black, T.** (with others) *“A high precision measurement of the neutron-triton coherent scattering length”*, to NIST; amount requested: \$50,000 (declined).
3. **Moss, M.** (with others, including **Bingham, F.**), *“Coastal Ocean Research and Monitoring Program (CORMP)”*, to National Oceanic and Atmospheric Association; amount requested: \$2,458,783 (pending).

#### E. Publications

1. **Alexanian, M.** *“Cavity broadcasting via Raman scattering”*, arXiv.org: quant-ph/0409105 (Sep. 2004).
2. **Alexanian, M.** (with S. Bose) *“Two-Photon Interactions in Cavity QED”*, published in Symmetries in Science XI conference proceedings, eds. B.J. Gruber, G. Marmo, and N. Yoshinaga, Kluwer Academic Publishers, Dordrecht, The Netherlands, 2004.
3. **Bingham, F.** (with B.O. Blanton et. al.), *“Barotropic tides in the South Atlantic Bight”*, J. Geophys. Res. **109**, C12024 (2004).
4. **Bingham, F.** (with A.M. Quattrini et. al.) *“Distribution of Larval Fishes Among Water Masses in Onslow Bay, North Carolina: Implications for Cross-shelf Exchange”*, Fisheries Oceanography, **14:3**, 1-19 (2005).
5. **Gan, L.** (with F. Dohrmann et. al.), *“Angular Distributions for  $^{3,4}\Delta H$  Bound States in the  $^{3,4}He(e, e'K^+)$  Reaction”*, Phys. Rev. Lett. **93:242501** (2004).
6. **Gan, L.** (with M.E. Christy et. al.), *“Measurements of electron-proton elastic cross sections for  $0.4 < Q^2 < 5.5 (GeV/c)^2$ ”*, Phys. Rev. C **70:015206** (2004).
7. **Gan, L.** (with Y. Liang, et. al.) *“Measurement of  $R = \sigma_L/\sigma_T$  and the Separated Longitudinal and Transverse Structure Functions in the Nuclear Resonance Region”*, arXiv.org: nucl-ex/0410027 (Oct. 2004).

8. **Gan, L.** (with L. Yuan, et. al.) “*Hypernuclear Spectroscopy Using the  $(e, e'K^+)$  Reaction*”, arXiv.org: nucl-ex/0408011 (Aug. 2004).
9. **Olszewski, E.** “*From Baking a Cake to Solving the Schrödinger Equation*”, arXiv.org: physics/0503210 (Mar. 2005).

## **F. Talks Presented and Meetings Attended**

### Contributed Talks

1. **Bingham, F.** “*Shallow Water Temperature Response to Passing Hurricanes in Onslow Bay, NC*”, presentation made to the 18<sup>th</sup> Annual DU/NCOC Symposium, Duke Marine Lab, Beaufort, NC, November 19-20, 2004.
2. **Bingham, F.** “*Outdoor Laboratory Activities for Liberal Arts Physics*”, presentation made to the NCS-AAPT meeting in Davidson, NC, Oct. 29-30, 2004.
3. **Gan, L.** “*Angular Resolution of Compton Scattering from PrimEx Data*”, presentation made to the PrimEx Collaboration Meeting, Jan. 21, 2005.
4. **Moyer, C.** “*Teaching Quantum Physics with QMTools*”, presentation made to the 71<sup>st</sup> Annual Southeastern Section Meeting of the American Physical Society, Oak Ridge, TN, Nov. 11-13, 2004.
5. **Moss, M.** “*Coastal Ocean Research and Monitoring Program*”, numerous presentations to groups in Washington, locally, and elsewhere, including poster presentations (with other CORMP investigators).

### Invited Presentations

6. **Gan, L.** “*Symmetries of Low Energy QCD*”, presentation to the Workshop on Mediate Energy Physics and QCD, Jul. 12-16, 2004, Beijing, China.
7. **Gan, L.** “*Hypernuclear Physics at Jefferson Lab*”, presentation to the Workshop on Mediate Energy Physics and QCD, Jul. 12-16, 2004, Beijing, China.
8. **Gan, L.** “*PrimEx Physics at Jlab*”, presentation to the Workshop on Mediate Energy Physics and QCD, Jul. 12-16, 2004, Beijing, China.
9. **Gan, L.** “*Search for Eta-Mesic Nuclei*”, presentation to the Workshop on Mediate Energy Physics and QCD, Jul. 12-16, 2004, Beijing, China.
10. **Gan, L.** “*Penta-Quark Particle –Is It a New Discovery?*”, presentation to the Workshop on Mediate Energy Physics and QCD, Jul. 12-16, 2004, Beijing, China.
11. **Gan, L.** “*Chiral Symmetry and Electromagnetic Properties of Pseudoscalar Mesons*”, colloquium delivered at Fudan University, Shanghai, China, Jul. 2, 2004.
12. **Olszewski, E.** “*From Baking a Cake to Solving the Schrödinger Equation*”, colloquium delivered to the UNCW Department of Physics and Physical Oceanography, January 21, 2005.

### Other Meetings Attended (Professional Development)

1. **Bingham, F.** attended the Real-time Data QA/QC Workshop, Columbia, SC, Dec. 7, 2004.
2. **Bingham, F.** attended QARTOD (Quality Assurance of Real Time Ocean Data) meeting in Norfolk, VA, Feb 28-Mar. 2, 2005.
3. **Bingham, F.** attended the Carolina Oceans meeting in Columbia, SC, Feb. 4, 2005.
4. **Gan, L.** attended the Jefferson Lab Annual Users' Meeting, Newport News, VA, Jun. 11-13, 2004, and the weekly PrimEx collaboration group meeting.
5. **Gan, L.** attended the APS April Meeting, Tampa, FL, Apr. 16-19, 2005.
6. **Moss, M.** attended more than eight separate meetings over the past year on coastal ocean observing system policy and procedures. Meetings were held at federal agencies in Washington, D.C., at Chapel Hill (GA), and at NOAA's Coastal Ocean Center, Charleston, SC.

### **G. Service**

Especially noteworthy examples of service to the profession and the community for the 2004-2005 academic year include:

1. Professor **Moorad Alexanian** has reviewed manuscripts for the journals *Perspectives on Science and Christian Faith* (2), *Physical Review* (1), and *Physical Review Letters* (1).
2. Professor **Moorad Alexanian** contributed the piece "*Quantum Cloning and Quantum Information Research at UNCW*" to the December 2004 issue of the Physics Department Newsletter. He also was a member of the honors thesis committee for biochemistry student Kristina Knoelke. The title of her thesis was "*Dye-Efflux Kinetics from Neutral and Negatively Charged Phospholipid Vesicles Induced by the Cationic, Cell-Penetrating Peptide TP10*".
3. Professor **Fred Bingham** is the graduate advisor for Marine Science Masters students Chris Canady and Benjamin Speckhart. Ben successfully defended his thesis "*Observational Analysis of Shallow Water Response to Hurricanes in Onslow Bay, NC in 1999*" on Aug. 16, 2004. Professor Bingham also served on the M.S. thesis committee for Michael Murphy, who defended his thesis Nov. 19, 2004.
4. Professor **Fred Bingham** is the sole UNCW member of the Advisory Board for the Duke/University of North Carolina Oceanographic Consortium (D/UNCOC). He also serves on the Executive Committee and is Webmaster for the American Geophysical Union Ocean Sciences Section ([www.agu.org/sections/oceans/](http://www.agu.org/sections/oceans/)). He is also webmaster for the Carolina Sands Homeowners Association ([www.carolinasands.org](http://www.carolinasands.org)), and is involved in developing and maintaining the CORMP website ([www.cormp.org](http://www.cormp.org)).

5. Professor **Fred Bingham** has reviewed proposals to NSF (3), DUNCOC (3), NASA (1) as well as manuscripts (1 each) to the *Journal of Geophysical Research* and *The Physics Teacher*. He is also the reviewer for “Prentice Hall Science Explorer”, a 6<sup>th</sup> grade science textbook, and chapters 7-9 of the college level text “Physics” by Wilson, Buffa, and Lou.
6. Professor **Fred Bingham** served as moderator for the American Issues Forum, Energy and the Environment: “*What Will/Should Happen When I Flick a Light Switch in 2030?*”, UNCW, April 19, 2005. He also coached the Science Olympiad team from the Wilmington Academy of Arts and Sciences. [The team placed first in the region in the *Roads Scholars* event and third in the *Bridge Building* event.]
7. Professor **Timothy Black** organized the Department’s participation in the University-wide Involvement Carnival, September, 2004.
8. Professor **Brian Davis** represented the Physics Department at the College of Arts and Science’s 3<sup>rd</sup> Annual College Day event (Nov. 20, 2004), where he presented a lecture titled “*Archaeoastronomy in New Mexico*”. He also gave a presentation titled “*Lunar Eclipses and Cycles*” to the UNCW Lifelong Learning Society, Sep. 30, 2004, and another on *Meteorites* to the Cape Fear Astronomical Society, Oct. 3, 2004.
9. Professor **Brian Davis** was an event leader for this year’s Science Olympiad, held Mar. 19, 2005. He administered the *Reach for the Stars* competition (middle school level) and the *Astronomy* competition (high school level).
10. Professor **Liping Gan** heads up the UNCW Task Force on the First Year Faculty Experience for International Faculty. The Task Force promotes fellowship among international faculty and helps them face the challenges of a different culture. She is also a member of the Advisory Board to CSURF (Center for the Support of Undergraduate Research and Fellowship), and is involved in building an overseas Asian Studies program at UNCW.
11. Professor **Curt Moyer** served as a judge for the Science Fair held at the MCS Noble Middle School, Jan. 25, 2005.
12. Professor **Marvin Moss** was appointed to a second 3-year term on the Board of Directors of the North Carolina Biotechnology Center in the Research Triangle Park. He is also a member of the Board’s subcommittee on Science and Technology.
13. Professor **Marvin Moss** continues to consult with the Camp Lejeune Marine Base in Jacksonville, NC on environmental problems. His efforts have lead to a Federal Strategic Environmental R&D Program commitment of \$20M over 10 years to address environmental issues at Camp Lejeune. Also, in his capacity as Director of CORMP, Professor Moss has established partnerships with the U.S. Marine Corps at Camp Lejeune and the Wilmington Office of the National Weather Service.
14. Professor **Marvin Moss** continues to serve as advisor and co-worker with the UNCW Washington, DC congressional liaison person, Mr. Robert Wicklund.

#### IV. ACADEMIC ENRICHMENT & SUPPORT PROGRAMS

##### A. Course Offerings and Enrollments

<b>Summer 2004</b>	<b>Instructor</b>	<b>Enrollment</b>
PHY 101 Elementary College Physics	Herman, R.	55
PHY 102 Elementary College Physics	Black, T.	29
PHY 201 General Physics	Olszewski, E.	48
PHY 202 General Physics	Olszewski, E.	41
<b>Fall 2004</b>		
PHY 101 Elementary College Physics	Olszewski, E.	77
PHY 101 Elementary College Physics	Olszewski, E.	81
PHY 101 Elementary College Physics	Herman, R.	77
PHY 103 Great Ideas in Physics	Alexanian, M.	37
PHY 105 Introductory Physics	Bingham, F.	23
PHY 201 General Physics	Moyer, C.	30
PHY 201 General Physics	Black, T.	45
PHY 201-300 General Physics-Honors Lab	Moyer, C.	2
PHY 201-301 General Physics-Honors Lab	Black, T.	4
PHY 260 Introduction to Astronomy	Davis, B.	75
PHY 311 Mathematical Physics	Alexanian, M.	8
PHY 321 Mechanics	Davis, B.	9
PHY 335 Modern Physics	Gan, L.	6
PHY 400 Advanced Lab	Black, T.	5
PHY 411 Electricity & Magnetism	Moyer, C.	6
PHY 444 Quantum Theory	Alexanian, M.	4
PHY 495 Physics Seminar	Davis, B.	1
PHY 495 Physics Seminar	Gan, L.	2
<b>Spring 2005</b>		
PHY 102 Elementary College Physics	Olszewski, E.	72
PHY 102 Elementary College Physics	Olszewski, E.	85
PHY 102 Elementary College Physics	Herman, R.	66
PHY 105 Introductory Physics	Bingham, F.	32
PHY 111 Archaeoastronomy	Davis, B.	40
PHY 202 General Physics	Moyer, C.	21
PHY 202 General Physics	Black, T.	38
PHY 202 General Physics-Honors Lab	Black, T.	3
PHY 260 Introduction to Astronomy	Davis, B.	71
PHY 300 Analog Circuits	Black, T.	7
PHY 322 Classical Dynamics II	Moss, M.	7
PHY 412 Electricity & Magnetism II	Alexanian, M.	6
PHY 435 Nuclear Physics	Gan, L.	2
PHY 455 Thermal Physics	Gan, L.	7
PHY 475 Physical Oceanography	Bingham, F.	1
PHY 491 Directed Individual Study	Black, T.	4
PHY 495 Physics Seminar	Davis, B.	1
PHY 575 Physical Oceanography	Bingham, F.	6
PHY 591 Directed Individual Study	Bingham, F.	1

## B. Innovative Teaching Initiatives

In Fall 2004, Professor **Fred Bingham** again taught PHY 105 (Introductory Physics) as part of a Learning Community (LC) with Professor Paul Townend of the History Department. The LC "*Science and Civilization*" included a trip to the State Fair where the students took and analyzed scientific data to discover what makes an amusement ride "thrilling". Professor Bingham also received an ITSD InfoTech Award (\$3700) to upgrade laboratory equipment used in this course.

Professor **Timothy Black** continues to teach an Honors section of physics laboratory for the introductory calculus-based sequence PHY 201-202.

## C. Research Opportunities for Undergraduates

The following research projects were active during the 2004-2005 academic year:

1. Professor **Timothy Black** directed students Thomas Hutson, Michael Grissom, Christopher Tate, and William Zinicola in an independent study investigation of rocketry. The project entailed building a high-powered rocket (1/4-scale Patriot missile) and outfitting it with onboard telemetry. The students also designed and constructed a launch pad and obtained preliminary federal certification for high-powered rocketry. The project engendered much enthusiasm among its participants, and likely will be the focus of further DIS projects as well as an SPS group activity.
2. For 2.5 months during the summer of 2004, UNCW students Rogan Cronin, Galen Gresalfi, and James Sheffield assisted Professor **Liping Gan** with her research at Jefferson National Laboratory developing a low energy recoil detector for experiments testing predictions of QCD (Quantum Chromodynamics). This was the second such appointment for Galen. The students were supported by research grants from NSF and Jefferson Lab.

## D. Physics Department Colloquia

Date	Speaker/Affiliation	Title
September 24	Dr. Gregg Snedden, Louisiana State University	<i>Physical Oceanography of the Mississippi River Delta</i>
October 22	Dr. Richard Creswick, University of South Carolina	<i>Time's Arrow and the Second Law of Thermodynamics</i>
October 29	Dr. Sergei Matinyan, Yerevan Physics Institute, Armenia, Associated Universities	<i>Quantum Chaos and Riemann Hypothesis</i>
November 5	Dr. Paul Tiesenga, University of North Carolina Chapel Hill	<i>Neurophysics of attention, or 1+4 equals 3</i>
November 12	Dr. Daniel Reichart, University of North Carolina Chapel Hill	<i>Gamma-Ray Bursts as Probes of the Early Universe</i>

November 19	Mr. Galen Gresalfi, University of North Carolina Wilmington, and Mr. Chris Long, University of North Carolina Wilmington	<i>Dark Matter</i> <i>The Higgs Boson</i>
January 21	Dr. Eddie Olszewski, University of North Carolina Wilmington	<i>From Baking a Cake to Solving the Schrodinger Equation</i>
January 28	Dr. Berndt Mueller, Duke University	<i>Who is afraid of a quark-gluon plasma?</i>
February 4	Dr. Mette Olufsen, North Carolina State University	<i>Modeling Control of Cardiovascular Dynamics during Postural Change from Standing</i>
March 18	Dr. Henry Greenside, Duke University	<i>Olfaction as a Frontier of Physics</i>
April 1	Dr. Henry R. Weller, Duke University and Triangle Universities Nuclear Laboratory	<i>A Free-Electron Laser Generated Gamma-Ray Beam for Research in Nuclear Physics</i>
April 8	Dr. John Morrison, North Carolina State University	<i>Connectivity and Upwelling Dynamics in the Galapagos Marine Reserve</i>
April 15	Dr. Celeste Sagui, North Carolina State University	<i>Distributed Multipole Methods for Accurate Electrostatics in Large-Scale Biomolecular Simulations</i>
April 21	Dr. Deborah Konkowski, The United States Naval Academy	<i>Black Holes, Big Bangs and Cosmic Strings</i>
April 22	Dr. Deborah Konkowski, The United States Naval Academy	<i>Classical and Quantum Singularities in General Relativistic Spacetimes</i>

#### **E. SPS/ΣΠΣ Activities**

On April 21, 2005, the UNCW chapter of Sigma Pi Sigma, the national physics honor society, admitted to membership three undergraduate students: *Louis Michael Grissom, Jr.*, *Joseph Shane Martin*, and *William Nicholas Zinicola*. The induction ceremony followed a public lecture by guest speaker and relativist Professor Deborah Konkowski of the U.S. Naval Academy, who spoke about “*Black Holes, Big Bangs, and Cosmic Strings*”. Refreshments (pizza and soda) were served during a social hour after the ceremony.

## V. STUDENTS

### A. Enrollment Statistics

#### Undergraduate Physics Majors

Year	Freshman (Fall)	Sophomores (Fall)	Juniors (Fall)	Seniors (Fall)	Second Majors (Fall)	Fall Total	Annual Graduates	
							B.A. Degrees	B.S. Degrees
1994- 1995	0	4	9	12	N/A	25	1	4
1995- 1996	1	4	7	8	N/A	20	3	3
1996- 1997	0	12	5	10	N/A	27	5	6
1997- 1998	0	7	11	11	1	30	5	3
1998- 1999	0	3	5	15	2	25	6	3
1999- 2000	0	4	1	12	1	18	3	5
2000- 2001	0	4	3	6	1	14	3	2
2001- 2002	0	5	2	5	2	14	2	2
2002- 2003	0	2	10	4	4	20	3	1
2003- 2004	0	9	5	9	1	24	3	4
2004- 2005	0	6	8	8	2	22	0	4

### B. Degrees Awarded

December, 2004

***Bachelor of Science:***

Galen Joseph Gresalfi  
James Christopher Long

May, 2005

***Bachelor of Science:***

Thomas Brock Hutson  
Glenn Edward Shivar

### C. Honors, Awards, and Scholarships

**Hildelisa Hernandez Departmental Award in Physics:** *Louis Michael Grissom, Jr.*

The Hernandez award, named for retired Professor Emeritus Hildelisa Hernandez, recognizes outstanding academic achievement of a member of the junior class who is seeking the B.S. degree in physics. The award carries a stipend of \$500 to help defray educational expenses incurred at UNCW.

Mike compiled an overall GPA = 3.559, and a GPA = 3.955 in physics. He has been selected to participate in the Jefferson Lab Experience for the upcoming summer, and is one of three undergraduates inducted into Sigma Pi Sigma for 2005. Mike expects to graduate next spring with a minor in Mathematics.

**Walter Schmid Award:** *Galen Joseph Gresalfi*

The Schmid Award is presented to a graduating senior, who, in the opinion of the physics faculty, shows great potential for contributing to the fields of theoretical or applied physics. The award consists of a plaque inscribed with the winner's name, and a cash prize.

Galen compiled a GPA = 3.479 (Physics GPA = 3.761) and graduated with a minor in Mathematics. He is a recipient of a Jefferson Lab Summer Fellowship for the past two years, and became an active spokesperson for undergraduate research at UNCW by delivering papers in several professional forums, including the 2003 Triangle Undergraduate Research Symposium (Duke University), the 2003 Southeastern Section Meeting of the American Physical Society (Wrightsville Beach, NC), and the 2004 CAA Undergraduate Research Conference (University of Delaware).

**Jefferson Lab Summer Fellowships:** *Louis Michael Grissom, Jr, Letisha Annette McLoughlin, and Nicholas Worthington Woods*

Mike, Letisha, and Nick were selected by faculty member Professor Liping Gan to assist this summer at Jefferson Lab in developing a low energy recoil detector for experiments testing predictions of QCD (Quantum Chromodynamics). The students are supported by research grants from NSF and Jefferson Lab.

**Bookstore Scholarship Award Winners:** *Louis Michael Grissom, Jr. and Joseph Shane Martin*