BOARD OF SUPERVISORS
FOR THE UNIVERSITY OF LOUISIANA SYSTEM
NOTICE OF MEETING AND AGENDA
2:00 p.m., Monday, December 3, 2012**
Claiborne Building Conference Center
Auditorium, Room 100, “The Louisiana Purchase Room”
1201 North Third Street
Baton Rouge, Louisiana

A. Call to Order
B. Roll Call
C. Invocation

D. Approval of Minutes of October 23, 2012 Regular Meeting and November 9, 2012 Special Meeting

E. REPORT OF ACADEMIC AND STUDENT AFFAIRS COMMITTEE

1. Louisiana Tech University’s request for approval to award an Honorary Doctor of Humanities degree to Benjamin L. Denny at the Fall Commencement Exercises.

2. Louisiana Tech University’s request for approval to award an Honorary Doctor of Humanities degree to Jack E. Byrd at the Fall Commencement Exercises.

3. Northwestern State University’s request for approval of a Letter of Intent for a Doctor of Nursing Practice degree program in the College of Nursing and Allied Health.

4. University of Louisiana at Lafayette’s request for approval of a Letter of Intent for a Ph.D. degree program in Interdisciplinary Geosciences.

5. University of Louisiana at Monroe’s request for approval of a Post Baccalaureate Certificate (PBC) in Computer Information Systems in the College of Business Administration.

** Executive Session, pursuant to R.S. 42:6.1, may be required.
Persons wishing to make public comment on any item on the agenda should complete a Public Comment Card and register with the Assistant to the Board.


8. University of Louisiana System’s proposed revisions to Board Rule Chapter II. Students. Section I. Admission.

9. Other Business

F. REPORT OF ATHLETIC COMMITTEE

1. Southeastern Louisiana University’s request for approval of a contractual agreement with Blake Hornbuckle, Head Coach Women’s Soccer, effective February 1, 2013.

2. Southeastern Louisiana University’s request for approval of a contractual agreement with Geno Frugoli, Head Coach Women’s Volleyball, effective February 1, 2013.

3. University of Louisiana at Lafayette’s request for approval of a contractual agreement with Robert Marlin, Head Men’s Basketball Coach, effective April 1, 2012.


5. Other Business

G. REPORT OF AUDIT COMMITTEE

1. University of Louisiana System’s report on internal and external audits submitted for the period of October 9 to November 16, 2012.

2. Other Business

H. REPORT OF FACILITIES PLANNING COMMITTEE

1. Louisiana Tech University’s request for approval of a Ground Lease with the Louisiana Tech University Foundation for improvements to the Aquatic Facility and to accept donations upon completion of the lease.

2. University of Louisiana at Lafayette’s report of Campus Master Plan.

3. University of New Orleans’ request for approval of adjustment to the overall project costs for the update renovations of Maestri Field located at Privateer Park, in accordance with the provisions set forth in Act 959 of 2003.
4. University of Louisiana System’s request for approval to amend the FY 2013-14 Capital Outlay Budget Request.

5. Other Business

I. REPORT OF FINANCE COMMITTEE

1. University of Louisiana at Lafayette’s request for approval of the First Amendment to the Facilities Lease dated November 1, 2010 with Ragin’ Cajun Facilities, Inc., for the design and construction of the Student Union complex and to request that the project originally approved at $42,000,000 be increased to $53,000,000.

2. University of Louisiana System’s discussion of Fiscal Year 2012-13 first quarter financial reports and ongoing assurances.

3. Other Business

J. REPORT OF PERSONNEL COMMITTEE

1. University of New Orleans’ request for approval to appoint Dr. James E. Payne as Provost and Vice President for Academic Affairs effective January 1, 2013.

K. SYSTEM PRESIDENT’S BUSINESS

1. Personnel Actions

2. System President’s Report

3. University of Louisiana System’s Revision to Bylaws

4. Other Business

L. BOARD CHAIR’S BUSINESS

1. Board Chair’s Report

2. Report of Nominating Committee for 2013 Board Officers

3. Executive Session may be required to discuss State of Louisiana versus BP Exploration & Production, Inc. et al., United States District Court, Eastern District of Louisiana, MDL 2179.

4. Other Business

M. Other Business

N. Adjournment
BOARD OF SUPERVISORS FOR THE
UNIVERSITY OF LOUISIANA SYSTEM

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

December 3, 2012

Item E.1. Louisiana Tech University’s request for approval to award an Honorary Doctor of Humanities degree to Benjamin L. Denny at the Fall Commencement Exercises.

EXECUTIVE SUMMARY

Louisiana Tech University wishes to recognize the contributions of Benjamin L. Denny by awarding him an Honorary Doctor of Humanities at the Fall Commencement Exercises.

Mr. Denny is President and Chief Executive Officer of the Bank of Ruston and President of the Louisiana Tech University Foundation, Inc. He holds two degrees from Louisiana Tech – a Bachelor of Science degree in business data processing and a Master of Business Administration with a finance specialty. Mr. Denny has worked at National Bank of Commerce in New Orleans and Ruston Building Loan Association, and has served as President of Lincoln Bank and Trust Company (now Central Bank) and the Bank of Ruston.

Mr. Denny has been involved in countless civic endeavors including the Louisiana Committee of 100 for Economic Development, the Lincoln General Hospital, Inc., Louisiana Methodist Children’s Home, and Council for a Better Louisiana, Louisiana Partnership for Innovation and Technology, Lincoln Health Foundation, and Lincoln Parish Narcotics Enforcement Team Assistance Corporation. He is active at Trinity United Methodist Church, having served as Chairman of its administrative board. Mr. Denny was acknowledged for his impressive record of community service by being awarded the Russ Award by the Ruston-Lincoln Parish Chamber of Commerce.

Mr. Denny has made numerous contributions to Louisiana Tech University. He has served as director of the Louisiana Tech Alumni Association. As well, he served as director of the Louisiana Tech University Foundation for more than twenty years and as treasurer and director of the Louisiana Tech Research Foundation. Mr. Denny also was a member of the Louisiana Tech College of Business Advisory Board and chaired the Investment Committee of the Foundation. Under his leadership, the Foundation experienced unprecedented growth, with its assets and planned gifts now totaling nearly $200 million.

Mr. Denny’s exemplary dedication to Louisiana Tech University, as well as to the City of Ruston and Lincoln Parish, is deserving of recognition through conferral of an Honorary Doctor of Humanities.
RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves Louisiana Tech University’s request to award an Honorary Doctor of Humanities degree to Benjamin L. Denny at the Fall Commencement Exercises.
LADIES AND GENTLEMEN OF THE BOARD OF SUPERVISORS FOR THE UNIVERSITY OF LOUISIANA SYSTEM:

Louisiana Tech University requests permission to award an honorary Doctor of Humanities degree to Benjamin L. Denny, President and Chief Executive Officer of the Bank of Ruston and President of the Louisiana Tech University Foundation, Inc. Mr. Denny holds two degrees from Louisiana Tech - a Bachelor of Science degree in business data processing (1970), and a Master of Business Administration with a finance specialty (1980).

Following his graduation, Mr. Denny joined the National Bank of Commerce in New Orleans. He then worked with Ruston Building and Loan Association. He became President of Lincoln Bank and Trust Company which became Central Bank, and he served as President of the Ruston Division of that bank before becoming President of the Bank of Ruston in 1992. Under his leadership, the Bank of Ruston has realized significant success and growth, and its stock became publicly traded several years ago.

Mr. Denny has been and continues to be involved in countless civic endeavors including the Louisiana Committee of 100 for Economic Development, the Lincoln General Hospital, Inc. (Chairman and Director), Louisiana Methodist Children’s Home (Treasurer and Director), Council for a Better Louisiana (Vice President and Director), Louisiana Partnership for Innovation and Technology, Lincoln Health Foundation (Director), and Lincoln Parish Narcotics Enforcement Team Assistance Corporation (President and Director). He is active at Trinity United Methodist church, having served as Chairman of its Administrative board. Mr. Denny was awarded the coveted Russ Award by the Ruston-Lincoln Parish Chamber of Commerce in recognition of his impressive record of community service.

He has served Louisiana Tech University as a Director of the Louisiana Tech Alumni Association, as a Privileged Director of the Louisiana Tech University Foundation for more than twenty years, as Treasurer and Director of the Louisiana Tech Research Foundation and as a member of the Louisiana Tech College of Business Advisory Board. For more than fifteen years, Mr. Denny has served on the Executive Committee of the Louisiana Tech Foundation, and he has twice served as president and is currently serving in that capacity. He has also chaired the
Investment Committee of the Foundation for several terms and is a present member of that committee. His leadership has led to unprecedented growth of the Foundation and exemplary management of its financial affairs. As a result, the Foundation’s assets and planned gifts for which notification has been received have increased significantly, now totaling nearly $200 million.

In recognition of his professional achievement and his continuing support of university programs, I respectfully request permission to award an honorary Doctor of Humanities degree to Benjamin L. Denny at the winter quarter commencement exercises on March 2, 2013.

Sincerely,

[Signature]

Daniel D. Reneau
President
Item E.2. Louisiana Tech University’s request for approval to award an Honorary Doctor of Humanities degree to Jack E. Byrd at the Fall Commencement Exercises.

EXECUTIVE SUMMARY

Louisiana Tech University wishes to recognize the contributions of Jack E. Byrd by awarding him an Honorary Doctor of Humanities at the Fall Commencement Exercises.

Mr. Byrd currently serves as Chairman, President and Chief Executive Officer of MBL Bank and Minden Bancorp, Inc., and Vice President of the Louisiana Tech Foundation, Inc. He earned a Bachelor of Science degree in accounting from Louisiana Tech University.

Although Mr. Byrd began his career as staff accountant, he quickly became a partner in the Jamieson and Byrd Certified Public Accounting firm in Minden, Louisiana. After serving as director and president of Minden Building and Loan Association, he became director and president of Minden Bank and Trust. Mr. Byrd also served as Chairman and Chief Executive Officer of MBL Bank and Minden Bancorp, Inc. In addition, he has held public servant roles such as President of the Minden Jaycees, the Minden Lions Club, and Chairman of the Minden Chamber of Commerce. As well, he is a member of many professional organizations and has served on many committees at the First Baptist Church in Minden.

Mr. Byrd has made many contributions to Louisiana Tech University. His roles as board member and president of the Louisiana Tech Alumni Association have served the University well. With the Foundation, Mr. Byrd has served as a Privileged Director, chairman of the Investments Committee and a member of the Executive Committee, having served several terms as president. He is currently Vice President and President-elect of the Foundation and is the director of the Louisiana Tech Research Foundation and a member of the College of Business Advisory Board. His leadership of the Louisiana Tech University Foundation has greatly contributed to the organization’s unprecedented growth and financial stability.

In recognition of Mr. Byrd’s professional achievement and his continuing support of university programs, Louisiana Tech University would like to award an honorary Doctor of Humanities degree to Jack E. Byrd, Jr.
RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves Louisiana Tech University's request to award an Honorary Doctor of Humanities degree to Jack E. Byrd, Jr. at the Fall Commencement Exercises.
LADIES AND GENTLEMEN OF THE BOARD OF SUPERVISORS FOR THE UNIVERSITY OF LOUISIANA SYSTEM:

Louisiana Tech University requests permission to award an honorary Doctor of Humanities degree to Jack E. Byrd, Jr., Chairman, President, and Chief Executive Officer of MBL Bank and Minden Bancorp, Inc., and Vice President of the Louisiana Tech University Foundation, Inc. Mr. Byrd earned the Bachelor of Science degree in accounting from Louisiana Tech University in 1968.

Mr. Byrd began his career as a staff accountant and soon became a partner in the Jamieson and Byrd Certified Public Accounting firm in Minden, Louisiana. He was highly successful in that firm, and he subsequently became Director and President of Minden Building and Loan Association in 1987, serving in that capacity until 1989. He became Director and President of Minden Bank and Trust and served until that bank merged with Regions Bank in 1999; he was then President of the North Louisiana Regions Bank from 1999 to 2007. Since 2007, he has served as Chairman and CEO of MBL Bank and Minden Bancorp, Inc., successfully expanding that institution into a publicly traded entity.

An unsel Phish public servant, Mr. Byrd has served as President of the Minden Jaycees, the Minden Lions Club, as Chairman of the Minden Chamber of Commerce, and as a member of countless civic committees and groups seeking to enhance educational endeavors in Webster Parish. He is a member of many professional organizations and is highly respected in the banking field. He is a deacon and has served on many committees of the First Baptist Church in Minden. Never one to seek recognition, Jack Byrd has quietly made a tremendously positive difference in his profession and in our state.

At Louisiana Tech, Mr. Byrd has served the Louisiana Tech Alumni Association as a board member and as president. For more than twenty years he has served as a Privileged Director of the Foundation, and for more than fifteen years, he has been a member of the Foundation's Executive Committee. Mr. Byrd has served several terms as president of the Foundation and as chairman of the Investments Committee. He is currently Vice President and President-elect. He
is a director of the Louisiana Tech Research Foundation and a member of the College of Business Advisory Board. He serves as a non-voting, advisory member of the presidential selection committee for Louisiana Tech.

His leadership of the Louisiana Tech University Foundation has greatly contributed to the organization’s unprecedented growth and financial stability. Assets and planned gifts for which notification has been received have increased dramatically, now totaling nearly $200 million, and the Foundation is providing invaluable support to the mission and programs of the University.

In recognition of his professional achievement and his continuing support of university programs, I respectfully request permission to award an honorary Doctor of Humanities degree to Jack E. Byrd, Jr., at the winter quarter commencement exercises on March 2, 2013.

Sincerely,

[Signature]

Daniel D. Reneau
President
Item E.3. Northwestern State University’s request for approval of a Letter of Intent for a Doctor of Nursing Practice degree program in the College of Nursing and Allied Health.

EXECUTIVE SUMMARY

Northwestern State University proposes to offer a Doctor of Nursing Practice (DNP) degree program in the College of Nursing and Allied Health. The proposed DNP program is a practice-focused, rather than research-focused, doctoral nursing degree and is designed to prepare nurses educationally for careers as advanced practice registered nurses (APRNs). The DNP is envisioned by advanced practice nursing educators and administrators as the entry level educational preparation for APRNs by the year 2015.

According to the American Association of Colleges and Nursing, the majority of DNP programs have focused on a phased-in approach that begins with the entry of masters prepared advanced practice registered nurses into the DNP program. Northwestern proposes to offer two options for entry into the DNP program: 1) Phase One: post-masters/post-research doctorate entry for individuals with advanced practice nursing education and certification, and 2) Phase Two: post-baccalaureate entry for individuals with a baccalaureate nursing degree. Because students in the first phase will already hold advanced practice nursing certification, during the first two program years extensive clinical supervision of students will not be required. Beginning in year three, however, expanded clinical supervision of students will be necessary and will be addressed by current graduate nursing faculty.

There is a need for DNP programs at both national and state levels. In 2010, the Institute of Medicine (IOM) in the Future of Nursing: Leading Change, Advancing Health emphasized the importance of nurse education in healthcare reformation, and called for nurses to obtain higher levels of education. Further, the IOM recommended that the number of nurses with a doctorate be doubled by 2020. Northwestern is well suited to offer the DNP degree. Its graduate nursing program has been the only graduate nursing program in Louisiana to be ranked among the top 100 programs in the nation by US News and World Report (2011). The University’s graduate nursing program annually provides Louisiana citizens with over 40 APRNs who are prepared to deliver desperately needed primary healthcare services. Currently, there are five DNP programs offered in Louisiana (Loyola University, University of Louisiana at Lafayette, Southeastern Louisiana University, Southern University, and Louisiana State University Health Sciences Center). Information provided by the Louisiana State Board of Nursing indicates, however, that APRNs in north and central Louisiana continue to leave for out-of-state DNP
programs. Northwestern’s proposed DNP program would, therefore, be appropriate and beneficial both because of the University’s location and its track record as the largest single university producer of nurse practitioners in Louisiana.

Northwestern conducted several surveys to evaluate BSN and nurse practitioner graduates’ interest in pursuing the DNP. Based on survey results, the University projects that 25 students will enroll in each of the first 3 years and 20 students will enroll in years 4 and 5. It is also projected that 25 students will graduate in years 2, 3 and 4 while 45 will graduate in year 5 and 60 in year 6.

Existing facilities and library holdings will be sufficient to deliver the program initially. However, one additional faculty member will be required to begin the DNP program and a second doctoral prepared faculty will be needed the second year. Equipment costs are projected at $5,000 in each of the first two years and $1,000 in each of the following three years. Supplies are expected at $1,500 for each of the first five years. The University is committed to providing adequate funding to initiate and support the program. In light of current budget restrictions, the University and College of Nursing are evaluating program offerings with projected realignment of faculty and resource reallocations to meet DNP program funding needs.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of the Louisiana System hereby approves Northwestern State University’s request of a Letter of Intent for a Doctor of Nursing Practice degree program in the College of Nursing and Allied Health.
November 6, 2012

Dr. Tom Layzell, Interim President
University of Louisiana System
1201 North Third Street, Suite 7-300
Baton Rouge, LA 70802

Re: Letter of Intent: Doctor of Nursing Practice

Dear Dr. Layzell:

Northwestern State University is requesting this item be placed on the agenda for approval at the December 2012 Board Meeting:

Northwestern is seeking approval of the enclosed Letter of Intent: Doctor of Nursing Practice in the College of Nursing and Allied Health.

Thank you for your consideration of this request.

Sincerely,

[Signature]

Randall J. Webb
President

RJW/pc

Enclosure
LETTER OF INTENT to DEVELOP a NEW ACADEMIC PROGRAM

General Information

<table>
<thead>
<tr>
<th>Campus:</th>
<th>Program: Title, CIP, Degree/Certificate Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northwestern State University of LA</td>
<td>Doctor of Nursing Practice (DNP); CIP CODE 51.3818</td>
</tr>
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<td></td>
<td>(Nursing Practice)</td>
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Institutional Contact Person & Access Info (if clarification is needed):
Dr. Norann Planchock, email—planchockn@nsula.edu; 318-677-3100

Date: October 31, 2012

1. **Program Objectives and Content**

   Describe the program concept; purpose and objectives; basic structure and components/concentrations; etc.

   The Doctor of Nursing Practice (DNP) program is a practice-focused, rather than research-focused, doctoral nursing degree, designed to educationally prepare nurses for careers as advanced practice registered nurses (APRNs). APRNs include nurse practitioners (NPs), certified nurse midwives (CNMs), certified registered nurse anesthetists (CRNAs), and clinical nurse specialists (CNSs). The DNP is envisioned by advanced practice nursing educators and administrators as the entry level educational preparation for APRNs by the year 2015 (AACN, 2004). Northwestern State University College of Nursing and Allied Health’s (NSUCONAH) DNP program will educationally prepare nurse practitioners primarily through internet teaching-learning modalities in addition to both synchronous and asynchronous distance education modalities delivered via compressed video.

   APRNs prepared at the practice doctorate level will be expected to:
   a) possess the ability and skills to utilize newly emerging scientific healthcare knowledge in the provision of quality healthcare services,
   b) interpret and implement research evidence to effectively and independently treat clients in a complex healthcare system,
   c) formulate system level interventions and monitor those interventions,
   d) manage aggregate data,
   e) identify gaps in current research evidence,
   f) perform analysis of costs and outcomes of care, and
   g) be accountable to the profession of nursing, society, patient, and self as nursing practice leaders (AACN, 2006).

   According to the American Association of Colleges of Nursing (AACN, 2010) the majority of DNP programs have focused on a phased-in approach that begins with the entry of masters prepared advanced practice registered nurses into the DNP program. Although the doctoral program objectives and expected competencies build upon and incorporate master’s level educational preparation, they are clearly designed to extend beyond this level. Two options are proposed for entry into the DNP program at NSU:
   a) Phase One: post-masters/post-research doctorate entry for individuals with advanced practice nursing education and certification,
   b) Phase Two: post-baccalaureate entry for individuals with a baccalaureate nursing degree. This entry option will be initiated in the third year of NSUCONAH’s DNP program.

   During the first two program years, extensive clinical supervision of students will not be required, because the students will already hold advanced practice nursing certification. However, beginning in year three, when post-BSN students are admitted, expanded clinical supervision of students will be addressed by current graduate nursing faculty; as these students are only licensed at the registered nurse level.
2. Need
Outline how this program is deemed essential for the well-being of the state, region, or academy (e.g., accreditation, contribution to economic development; related to current or evolving needs within state or region). Cite data to support need: employment projections; supply/demand data appropriate to the discipline and degree level, etc.

**Critical Education Need**

**National.** In 2010, the Institute of Medicine (IOM) in the *Future of Nursing: Leading Change, Advancing Health* emphasized the importance of nurse education in healthcare reformation, and called for nurses to obtain higher levels of education. The IOM specifically stated that nursing “education should include seamless transition into higher degree programs…to master’s, PhD and doctor of nursing practice (DNP) degrees” (p.2). Further, the IOM (2010) recommended that the number of nurses with a doctorate be doubled by 2020. In addition to the IOM, the American Association of Colleges of Nursing’s (AACN, 2004) member schools, of which NSU is a member, voted to endorse the *Position Statement on the Practice Doctorate in Nursing*, which called for moving the level of preparation for advanced nursing practice from the master’s to the doctoral degree by 2015. In the past eight years, over 184 DNP programs have begun enrolling students in 42 states. In 2012, another 101 DNP programs are in planning stages. Nationally, 2011 to 2012 enrollments in DNP programs grew by 28.9%; with 9,094 students now nationally enrolled in DNP programs (AACN, 2012).

NSUCONAH has long been on the forefront of national changes in graduate nursing education, and has worked diligently to ensure constituents of north and central Louisiana are provided the highest quality educational preparation for graduate nursing students. Therefore, in response to the national recommendations that the entry level into advanced practice nursing begin at the practice-doctorate level by 2015, the primary need for NSUCONAH’s development of the DNP program is to sustain post-masters and post-baccalaureate educational preparation of advanced practice registered nurses in northern and central Louisiana.

**State/Regional.** Northwestern State University’s graduate nursing program has been the only graduate nursing program in Louisiana to be ranked among the top 100 programs in the nation by US News and World Report (2011). The graduate nursing program has produced the most nurse practitioners of any single graduate nursing program in Louisiana over the past five years (LSBN, 2011). NSU’s graduate nursing program annually provides citizens of Louisiana with over 40 APRNs who are prepared to deliver desperately needed primary healthcare services. Of those APRNs who have completed the graduate nursing program at NSU, approximately 93% continue to practice in the state of Louisiana.

Seven graduate nursing programs in Louisiana offer APRN tracks/concentrations. Six of the seven programs offer the nurse practitioner role. NSUCONAH’s graduate nursing program demonstrated a 54% increase in nurse practitioner enrollment from 2006-2011. In addition, NSU’s graduate nursing program enrolled 23% (n=165) of the total 707 Louisiana nurse practitioner students in 2011; more than any other single university in Louisiana. NSUCONAH’s graduate nursing program produced 56 nurse practitioner graduates in 2011; the largest number of NP graduates of any Louisiana university. Also, from 2006-2011 NSUCONAH’s graduate nursing program produced 231 nurse practitioner graduates; again, the largest number of nurse practitioner graduates in Louisiana from any single university.

In Louisiana, as of October 2012, there are five DNP programs currently admitting students. Loyola, a private university, began admissions into the post-MSN to DNP program in 2008 and is now admitting into the post-BSN to DNP program. In addition, four of the seven public, state-supported higher education institutions approved to offer graduate nursing education are admitting students into DNP Programs. Those four state-supported institutions, all located along
the Interstate-10 corridor in Louisiana, received Board of Regents approval within the last two years for the DNP programs. The four Louisiana state-supported higher education institutions offering the DNP are: (a) University of Louisiana at Lafayette, (b) Southeastern, (c) Southern University, and (d) LSUHSC New Orleans. Noteworthy is that NSUCONAH attempted to submit a DNP Letter of Intent (LOI) for two years prior to the first submission of LOIs by the universities that have now received approval.

NSUCONAH continues to be the largest single university producer of nurse practitioners in Louisiana (State Board of Nursing Report, 2011). As a result, many north and central Louisiana constituents have consistently inquired as to NSUCONAH’s status for offering a DNP program. Due to their regional loyalty, these prospective DNP students are considering enrollment alternatives, particularly out-of-state universities that offer the DNP. In October, 2012, it was brought to NSUCONAH graduate nursing director’s attention through a copied email, that the University of Southern Alabama (USA) received over 315 DNP applications for the Spring, 2013 semester, and only accepted 186. Of those 186 accepted students, 126 were post-BSN to DNP, 17 were post-masters certificate DNP students obtaining a second specialty, and 42 were traditional post-masters to DNP students. Many of those applicants, including the person sending the email, are NSUCONAH’s alumni who work as nurse practitioners in north and central Louisiana, that have been waiting for five years for NSU to offer the DNP and are now pursuing out of state doctorate education (intrapersonal communication, October 25, 2012 @ 1:57 DRoe, 2012).

Further confirmation of north and central Louisiana’s APRNs exodus to out-of-state-programs was received from the Louisiana State Board of Nursing’s report at the Fall meeting of the Louisiana Council of Administrators in Nursing Education (LaCANE). The report stated from May to October, 2012 over 200 APRNs are pursuing the DNP at out-of-state universities; and, the majority of the APRN students were from the northern area of Louisiana.

The prospective student pool comprised of those having expressed an interest in the DNP and the consistent enrollment in excess of 180 NSU graduate nursing students validates a compelling need for a DNP program in north Louisiana at NSU. The DNP program would be initiated and conducted in the same high quality manner as the current MSN program. NSU will continue to be a leader in the nursing profession by providing registered nurses an opportunity to advance their education to meet the healthcare system’s increasing demand for individuals with advanced skills and knowledge.

Community Need
NSUCONAH’s Master of Science in Nursing program annually provides Louisiana citizens with over 40 APRNs prepared as Nurse Practitioners, who deliver desperately needed primary healthcare services. Of those NPs who have completed educational preparation at NSU, approximately 93% continue to practice in Louisiana. Data gathered from several current sources, cite preventable and/or largely manageable health conditions as the underlying cause of Louisiana’s poor state of health care. APRN’s are highly qualified to provide accessible, quality, and cost effective healthcare to manage these conditions.

In the United Health Foundation’s, State Health Rankings for 2011, Louisiana continues to be ranked the 49th, and second least healthy state in the nation. Moreover, Louisiana ranked 50th in the combined measures of risk factors (determinate rank) and 48th in outcomes rank, indicating the relative health of the population will remain low unless immediate measure to improve access to primary healthcare are taken. According to the report, Louisiana’s greatest healthcare deficiencies include low birth-weight infant births (47th); cancer related deaths, infant mortality, infectious disease, occupational fatalities, premature deaths and preventable hospitalizations (47th and 48th); cardiovascular deaths (45th); and, diabetes (41st). Notable contributing factors include children in
poverty (49th); obesity (42nd); high school graduation rates (48th); income disparity and median household income (both 47th); physical activity (47th); smoking (44th), and teen birth rate (42nd). The report also points to some racial disparity as reflected in the following statements: “In Louisiana obesity is more prevalent among non-Hispanic blacks at 39.5% than non-Hispanic whites at 28.4% and Hispanics at 29.3%. Diabetes also varies by race and ethnicity in Louisiana: 13.4% of non-Hispanic blacks have diabetes compared to 9.4% of non-Hispanic whites and 9.5% of Hispanics.” Lastly, and of great significance is Louisiana’s rank as 23rd in number of primary care physicians, indicating a great need for primary care providers in the state. Advanced practice registered nurses are prepared to fill this large need for Louisiana primary care providers.


Louisiana also continues to have large percentages of its population living in Primary Medical Care Health Professional Shortage Areas (HPSAs). Published by the Health Resources and Services Administration (HRSA) on June 29, 2012, twenty-seven of sixty-four (42%) parishes were designated as “whole county” or having primary care shortages. In addition, 19 parishes were designated “low-income” indicating another large segment of the state’s population not be able to afford or seek healthcare. The State Health Rankings (2011) also reflect that 765,800 (16%) of Louisiana’s adult citizens and 10% of Louisiana’s children are uninsured. Twenty-percent of Louisiana’s citizens are Medicaid beneficiaries and fifteen-percent are Medicare beneficiaries. These facts indicate a great current and future need for qualified primary care providers, such as advanced practice registered nurses.

Primary Care Provider Shortage. Much like the current shortage of nurse educators and nurses, there is a growing shortage of primary care providers in the United States. Since 1965, nurse practitioners have filled many gaps in the provision of primary health care. In fact, the initial vision for the role of the nurse practitioner was to provide healthcare services to underserved patients. The lack of primary care providers has grown as the physician shortage has increased. An article in the Wall Street Journal (2010) describing the future shortage of physicians, stated “…the nation could face a shortage of as many as 150,000 doctors in the next 15 years; according to the Association of American Medical Colleges…The greatest demand will be for primary-care physicians. These general practitioners, internists, family physicians and pediatricians will have larger roles under the new law, coordinating care for each patient. The U.S. has 352,908 primary-care doctors now and the medical college association estimates that 450,000 more will be needed by 2020.” A predicted estimated physician shortage of at least 124,400 is anticipated by the year 2025 (Dill & Salsberg, 2008).

Physician shortages, the decreasing number of physicians choosing primary care practices over more lucrative specialty practices, population growth, aging population, and a population with increasing long term care needs are all cited as factors contributing to the lack of primary care providers, especially to medically underserved patients (Dill & Salsberg, 2008).

The lack of primary care providers coupled with a growing patient population with long term care needs has stimulated the need for nurse practitioners to respond to the increasing need for primary care providers. In fact, the number of nurse practitioners has grown exponentially in the United States in the past five years. The total number of nurse practitioners in the United States reached an all time high of 147,295 in 2008 (Pearson, 2009). In Louisiana, there was an 84% increase in nurse practitioner enrollment and 75% increase in nurse practitioner graduates from 2006-2009 (LSBN, 2009). Hopefully, Louisiana will recognize the pressing need to continue to produce advanced practice registered nurses, and specifically nurse practitioners through DNP programs, thus increasing the number of primary care providers available to a medically underserved state.

According to the Kaiser Family State Health Facts (August 2012) Louisiana has 124 primary care physicians per 100,000 citizens, compared with the national average of 271 per 100,000.

http://www.statehealthfacts.org. Unfortunately, Louisiana has not and will not avoid the impact of a lack of primary care providers for the medically underserved. In a recent study investigating the
current and projected healthcare workforce needed to provide healthcare for the medically
disenfranchised citizens of Louisiana, Louisiana will need to produce 88% more primary care
providers (346 primary care providers) annually for the next five years to avoid a shortage of primary
care providers (Pierce & Tanner, 2008).

Currently the ratio of primary care providers (family practice, general practice, internal medicine,
OB/GYN, and Pediatric physicians) to population across the state is 1:1,017:3. For parishes in the
northern part of the state the average ratio of primary care providers to population is 1:1,475:4. This
ratio is even greater in the more rural and underserved parishes across the northern and central part of
the state. For example in Jackson parish the ratio of primary care providers to population is 1:3,055:6.
The Louisiana Health Report Card reported that Louisiana ranks 7th in the nation for lack of access to
primary care services with 21.6% of the population in Louisiana having limited or no access to
primary care services. Neighboring states such as Arkansas rank 31st in the nation for lack of access
with 10% of the population having limited access; Texas ranks 22nd in the nation for lack of access
with 12.7% of the population having limited access; and, Mississippi ranks 1st in the nation for lack of
access with 30.1% having limited access.

Economic Impact
Although the Nurse Practitioner concentration was initiated at NSU in 1983, data from January 2000
was used to examine the current economic impact of NSU’s MSN program. Since January, 2000 the
graduate nursing program at NSU has produced 262 graduates of which 204 were prepared as
Advanced Practice Registered Nurses (APRNs). Of these 204 APRNs, 185 or 86% sought and
secured initial employment in Louisiana. Based on the current average nurse practitioner salary
estimate for Louisiana of $84,614, published in the Advance for Nurse Practitioners journal in
January 2008, the initial economic impact of these APRNs in Louisiana equated to $15,653,590
(Rollett & Lebo, 2008). Although doubtful, but even considering that the APRN salaries have
remained constant over the cumulative work years, the minimal Louisiana economic impact of these
graduates since graduation would approximate $172,189,490. Noteworthy, is the fact that those
APRNs who have sought employment in Louisiana have been readily employed. In fact, NSU’s
College of Nursing and Allied Health receives a continuous flow of recruitment brochures and
telephone inquiries from healthcare employers requesting APRNs available for employment. With the
anticipated entry into practice requirement at the doctorate level by 2015, the need for a DNP
program to serve north and central Louisiana students is compelling. Without this program, the area
will progressively fall further behind in meeting the primary care service needs in and throughout
Louisiana.

3. Relevance
Explain why this program is an institutional priority at this time. How will it (a) further the mission of the institution
and (b) increase the educational attainment of the state’s adult population or foster innovation through research.

Northwestern State University’s DNP program will contribute to the mission of the University and
College of Nursing. In part, the mission of Northwestern State University is to “... prepare its
students to become productive members of society and promote economic development and
improvements in the quality of life of the citizens in its region” (Northwestern State University’s
University Catalog 2012-2013, p.8).

Graduates of the DNP program, APRNs educated at the highest practice-degree level, will be
equipped to provide quality primary healthcare services to Louisiana citizens and/or provide clinical
nursing education to Louisiana’s nursing students. By providing advanced nursing education to DNP
students, many career paths, including that of clinical educator or primary care provider will be
opened to the students. Therefore, the DNP program will improve the quality of life of both the
students and Louisiana citizens while substantially, positively, impacting the Louisiana’s economy.
4. Students

Summarize student interest/demand for the proposed program.

Several surveys were performed to evaluate baccalaureate graduates’ and APRNs interest in pursuing the DNP. One survey was administered to NSU College of Nursing’s Bachelor of Nursing Science graduates for the years 2005-2012. Of the 775 baccalaureate graduates from NSU College of Nursing from 2005 to 2012, 518 (67%) completed the survey. The survey results are presented in Table 1.

Table 1: Survey of Baccalaureate Graduates from NSU College of Nursing Interested in Graduate Education 2005-2012*

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2011</th>
<th>2012</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>121</td>
<td>108</td>
<td>111</td>
<td>108</td>
<td>70</td>
<td>93</td>
<td>100</td>
<td>711</td>
</tr>
<tr>
<td>NSU BSN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grads</td>
<td>82%</td>
<td>77%</td>
<td>85%</td>
<td>72%</td>
<td>87%</td>
<td>70%</td>
<td>72%</td>
<td>78%</td>
</tr>
<tr>
<td>(n=99)</td>
<td>(n=83)</td>
<td>(n=94)</td>
<td>(n=77)</td>
<td>(n=61)</td>
<td>(n=66)</td>
<td>(n=72)</td>
<td>(n=552)</td>
<td></td>
</tr>
</tbody>
</table>

*Data incomplete/missing for 2010

A survey was also administered by Northwestern State University to evaluate NSU College of Nursing’s nurse practitioner graduates’ interest in pursuing the DNP. Of the 411 surveys mailed to nurse practitioner graduates of NSU College of Nursing from 1994 to 2007, 150 (37%) were returned. Of the 150 nurse practitioners survey respondents, 113 (75%) were interested in pursuing the DNP.

Having synthesized the above data, estimated enrollment in NSU’s DNP program was calculated for the first five years. The results of these calculations are presented in Table 2.

Table 2: Estimated Graduation/Enrollment in DNP Program for First Five Years

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled Post-MSN</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>20</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Enrolled Post-BSN</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>Graduated (Total)</td>
<td>0</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>45</td>
<td>60</td>
</tr>
</tbody>
</table>

5. Cost

Estimate costs for the projected program for the first five years and how it would be funded. Indicate amounts to be absorbed out of current sources of revenue and needs for additional resources (if any).

Commit to provide adequate funding to initiate and sustain the program.

Currently, NSUCONAH’s graduate nursing faculty consists of three research-doctorate prepared faculty members, three research-doctorate prepared faculty members who are APRNs, two practice-doctorate prepared faculty members are APRNs, and one APRN masters prepared faculty member who is enrolled in a practice-doctorate program. Given the current graduate nursing program’s faculty numbers and qualifications, one additional doctorate prepared faculty member will be required to begin the DNP program and a second doctoral prepared faculty will be needed the 2nd year. For the 12 month faculty positions, the salary would be $95,000 plus fringe benefits calculated at 32% for a total of $125,400 for the first year and $250,800 for year two. Support personnel (clerical support) currently dedicated to the Graduate Studies and Research in Nursing program will be utilized to support the DNP program.

Equipment costs are projected at $5,000 in each of the first two years and $1,000 in each of the following three years. Supplies are expected at $1,500 for each of the first five years. In order for
faculty to attend conferences and workshops for professional development. $2000 has been budgeted for each member annually. The funding for faculty development is projected to come from the current College of Nursing budget.

The proposed budget for the DNP program is outlined in Table 3. The annual cost of the DNP program is projected to range from $131,900 in the first year to $257,300 in year five. The projected total cost for the program over the first five years is $1,161,100. When in-kind contributions are included, the total cost is projected to be $1,378,200.

Table 3: DNP Projected Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>Year 01</th>
<th>Year 02</th>
<th>Year 03</th>
<th>Year 04</th>
<th>Year 05</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Faculty (Salary &amp; Benefits)</td>
<td>$125,400</td>
<td>$250,800</td>
<td>$250,800</td>
<td>$250,800</td>
<td>$250,800</td>
</tr>
<tr>
<td>Supplies</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$1,500</td>
<td>$1,500</td>
</tr>
<tr>
<td>Equipment</td>
<td>$5,000</td>
<td>$5,000</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
</tr>
<tr>
<td>Total</td>
<td>$131,900</td>
<td>$257,300</td>
<td>$257,300</td>
<td>$257,300</td>
<td>$257,300</td>
</tr>
<tr>
<td>In-kind Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Assistants</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>Support Personnel (salary &amp; benefits)</td>
<td>$30,000</td>
<td>$30,000</td>
<td>$30,000</td>
<td>$30,000</td>
<td>$30,000</td>
</tr>
<tr>
<td>Travel</td>
<td>$2,000</td>
<td>$4,000</td>
<td>$4,000</td>
<td>$4,000</td>
<td>$4,000</td>
</tr>
<tr>
<td>Total</td>
<td>$42,000</td>
<td>$44,000</td>
<td>$44,000</td>
<td>$44,000</td>
<td>$44,000</td>
</tr>
<tr>
<td>Total Projected Costs</td>
<td>$173,000</td>
<td>$301,300</td>
<td>$301,300</td>
<td>$301,300</td>
<td>$301,300</td>
</tr>
</tbody>
</table>

The University is committed to providing adequate funding to initiate and support the program. In light of current state budget restrictions the University and College of Nursing are evaluating program offerings with projected realignment of faculty and resource reallocations to meet DNP program funding needs. In addition, various external funding sources are strongly supportive of the DNP program.

CERTIFICATION:

Linda Abney                      11/6/12
Chief Academic Officer

Edward Peake                     11/6/12
Chancellor/President

Management Board
BOARD OF SUPERVISORS FOR THE
UNIVERSITY OF LOUISIANA SYSTEM

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

December 3, 2012

Item E.4. University of Louisiana at Lafayette’s request for approval of a Letter of Intent for a Ph.D. degree program in Interdisciplinary Geosciences.

EXECUTIVE SUMMARY

The University of Louisiana at Lafayette proposes offer a Ph.D. degree program in Interdisciplinary Geosciences. The proposed program will combine the expertise of the School of Geosciences and the Department of Physics to provide new education and research opportunities in the strategic domains of energy and the environment, including coastal resilience. Students will develop an interdisciplinary understanding of the evolution and dynamics of Earth systems, including physical, geological, and biochemical processes, and will also learn how to apply this understanding to solve real-world problems.

Louisiana’s Blue Oceans document suggests that the state is poised to spend $3 to $4 billion per year on coastal restoration over the next 20 years. The proposed program will assist in providing the intellectual, research, and problem-solving capacity to address these needs. As well, Louisiana hosts some of the largest shale gas plays in the world and is a national and global hub for the energy industry. According to Blue Oceans estimates, the areas of water management and new oil/gas production alone are likely to add 100,000 to 195,000 jobs in Louisiana in the next 20 years. A large portion of these jobs will require highly-qualified personnel with advanced degrees.

The Ph.D. degree program in Interdisciplinary Geosciences will be managed via the School of Geosciences in partnership with the Department of Physics. The program will include three concentration areas: (1) Energy, (2) Environment, and (3) Earth Physics. The over-arching educational objective is to provide students with the interdisciplinary geoscience skills necessary to not only perform fundamental research, but to apply this research to solve problems in the areas of energy and the environment. This approach will provide new educational training and research opportunities for students. In addition to broad learning goals associated with interdisciplinary training, specific learning objectives have been developed for the individual courses and concentration areas.

The proposed program includes a set of five core courses followed by additional courses in the concentration areas of Energy, the Environment, or Earth Physics. A minimum of 72 semester hours of credit beyond the bachelor’s degree will be required, with at least 48 of these hours in non-dissertation course work, 18 in dissertation research, and 6 in dissertation writing/completion. Five core courses will be required for every student and should be completed
within a student’s first two years of the program. Each concentration area also requires four core courses; however, course work within the concentration areas will be flexible. There is also provision for an internship module if a student so chooses.

The proposed program will not emulate traditional Geology, Environmental or Physics programs, but instead will combine components within the Geosciences and Physics to forge interdisciplinary research in the areas of Earth’s energy, Environment, and Physics. Although Louisiana State University offers strong Ph.D. programs in Geology, Physics, and Environmental Sciences, respectively, this proposed program is unique in its interdisciplinary structure, scope, and focus and thus represents a useful addition to the state’s doctoral level programs.

The University estimates that over an expected six-year initiation period, the number of students will grow from a starting population of 5 in Year 1 to an estimated steady-state population of about 23 students by Year 6. The first graduate is expected in Year 4, with a steady-state annual graduation expectation of 4 students or more. The program can be fully implemented with no new costs to the University.

The proposed program is part of a comprehensive review and reorganization of departments and programs begun two years ago. Consolidation of former and existing M.S. programs will provide the University with the necessary human and research infrastructure to support the proposed program. UL Lafayette library resources are more than adequate for the program as well.

**RECOMMENDATION**

It is recommended that the following resolution be adopted:

**NOW, THEREFORE, BE IT RESOLVED,** that the Board of Supervisors for the University of Louisiana System hereby approves the University of Louisiana at Lafayette’s request for approval of a Letter of Intent to establish a Ph.D. degree program in Interdisciplinary Geosciences.
Dr. Tom Layzell  
Interim President  
University of Louisiana System  
1201 North Third Street, Suite 7-300  
Baton Rouge, LA 70802

Dear Dr. Layzell:

This is to request approval of a Letter of Intent for the PhD in Interdisciplinary Geosciences.

Please place this item on the agenda for consideration at the December, 2012 meeting of the Board of Supervisors.

Sincerely,

E. Joseph Savoie  
President

jl

Attachment
LETTER OF INTENT to DEVELOP a NEW ACADEMIC PROGRAM

General Information

Campus: University of Louisiana at Lafayette
Program: Earth’s Energy, Environment, and Physics (EEEP); CIP 40.0699; Ph.D. in Interdisciplinary Geosciences

Date: 11/14/12

Institutional Contact Person & Access Info (if clarification is needed):
Dr. David Borrok, Director of the School of Geosciences, Phone: (337) 482-2888;
e-mail: dborrok@louisiana.edu

1. Program Objectives and Content

We aim to build a cutting-edge, interdisciplinary Geosciences Ph.D. program that combines the expertise of the School of Geosciences and the Department of Physics at UL Lafayette to provide new education and research opportunities in the strategic domains (outlined in FIRST Louisiana) of Energy & the Environment, including Coastal Resilience. Our students will develop an interdisciplinary understanding of the evolution and dynamics of Earth systems, including physical, geological, and biochemical processes, and will also learn how to apply this understanding to solve real-world problems and to advance decision making in business and regulatory arenas. The partnership between the School of Geosciences and the Department of Physics will strengthen foundational research and education in both Physical and Earth sciences. What makes our program unique is our focus on providing educational and research activities at the Ph.D.-level that combine (and bridge the gap between) fundamental and application-based research. This “problem-solving” approach will result in more translational research, increased tech transfer, more research commercialization, and stronger business partnerships that can provide a tangible return on investment for the state of Louisiana. Moreover, the presence of this interdisciplinary doctoral program at UL Lafayette will aid in recruitment and retention of top research talents in Physical sciences, Earth sciences, and other intersecting foundational sciences. The mission of the proposed Ph.D. program mirrors that of the School of Geosciences, which is to provide maximum value for our students, community (including Louisiana’s traditionally strong and high-priority businesses and industries), and society through education and research focused on Energy and the Environment.

1.1. Structure of our program—Overview

The Ph.D. program will be managed via the School of Geosciences in partnership with the Department of Physics. All of the eligible faculty within each program will participate. Moreover, faculty from other departments and schools (Biology, Business, Economics, Chemistry, Engineering, etc.) and Research Centers (The Coastal Sustainability Studio (CSS), Institute for Coastal Ecology and Engineering (ICEE), and Louisiana Accelerator Center (LAC)) will be eligible to serve as Co-Chairs or members of a student’s dissertation committee (primary Chair would be within the School of Geosciences or Physics).

The program will have three concentration areas: (1) Energy, (2) Environment, and (3) Earth Physics. Table 1 illustrates the primary education and research areas we plan to target within each concentration and Figure 1 presents a conceptual illustration of how the concentration areas are linked.
Table 1. Concentrations and education/research target areas.

<table>
<thead>
<tr>
<th>Energy</th>
<th>Environment</th>
<th>Earth Physics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Petroleum exploration and development</td>
<td>• Coastal wetlands, hazards, and restoration</td>
<td>• Atmospheric/Oceanic geoacoustics</td>
</tr>
<tr>
<td>• Reservoir characterization</td>
<td>• Water, wastewater, and soil chemistry, biochemistry, quality, and remediation</td>
<td>• Physics of Earth systems, materials, and reservoir characterization</td>
</tr>
<tr>
<td>• Hydrocarbon geochemistry</td>
<td>• Climate and the environment</td>
<td>• Climate and environmental geophysics</td>
</tr>
<tr>
<td>• Unconventional resources such as shale gas/oil</td>
<td></td>
<td>• Physics of new energy sources</td>
</tr>
<tr>
<td>• Renewable energy sources</td>
<td></td>
<td>• Non-destructive monitoring</td>
</tr>
</tbody>
</table>

The linkages in Figure 1 are described in detail below:

**Energy – Environment**: Louisiana is both a global hub for the oil and gas industry and hosts 40% of the wetlands in the United States. In order to address the scientific and management challenges associated with sustaining these linked resources, students need a transformative education model. Our model will provide students with a fundamental understanding of the science of energy exploration and production, as well as a fundamental understanding of the important environmental systems in which they operate. A background in environmental systems is also critical for the development of alternative sources of energy like biomass, waves, tides, geothermal, and solar.

**Energy – Earth Physics**: Petroleum exploration is underpinned by understanding the physics of complex Earth systems. Geophysical tools, which utilize acoustic and electromagnetic signals, are used to remotely probe the deep subsurface structures and identify and characterize oil and gas reservoirs. A fundamental understanding of the physics behind the tool design and data collected using them will lead to more accurate non-conventional reservoir (deep water reservoir, gas hydrates) characterization. Interdisciplinary approaches will also equip our graduates with the skills necessary to develop new and more sensitive and environmentally-friendly geophysical tools. Our program will provide a unique academic climate for university-based innovations, industry partnerships, entrepreneurship, and tech transfer. Moreover, a basic understanding of the physics of Earth processes such as tidal action and atmospheric/ionospheric interactions (solar, wind, etc.) complements many avenues for alternative energy research.

**Environment – Earth Physics**: The physical processes in near-surface Earth systems (ocean and atmosphere) are directly linked to the geology and biochemistry of the environment. Our education model will offer students an understanding of the dynamics of the coupled physical and biochemical
dimensions of the environment. The multidisciplinary approach to environment characterization will provide better understanding of human impacts on climate at the global and regional levels.

**Energy – Environment – Earth Physics:** All our concentration areas are closely interconnected and overlapping. The fundamental science within each informs and provides conceptual feedbacks for the others. It also provides a stronger framework for problem-solving and applied research. This Ph.D. model will provide students with the interdisciplinary skills in Earth Sciences to tackle the challenges in the state of Louisiana and to address the grand scientific challenges of energy and environmental sustainability that we face as a society.

1.2. **Educational objectives and approach**

Our over-arching educational objective is to provide students with the interdisciplinary geoscience skills necessary to not only perform fundamental research, but to apply this research to solve real-world problems in the areas of Energy and the Environment. This approach will also provide new educational, training, and research opportunities for our M.S. students. In addition to broad learning goals associated with ensuring students receive interdisciplinary training, we have developed learning objectives specific to the individual courses and concentration areas. Below we outline a few key examples:

**Energy concentration:**
- Students will develop an advanced understanding of how rock properties are recognized and characterized through different geophysical techniques and how these properties influence traditional and unconventional energy exploration.
- Students will develop an advanced understanding of organic geochemistry, including how source rocks evolve with increased thermal maturity, and use this information to help evaluate unconventional shale gas/oil plays.
- Students will understand the economics of energy exploration and production and how this influences decision making at all levels of the process.

**Environmental concentration:**
- Students will develop an advanced understanding of the biological, chemical, and hydrological dimensions of coastal ecosystems and be able to anticipate how changes in one dimension influence the others.
- Students will develop an advanced understanding of the complex interrelationships among human interactions (including energy exploration/production) and the coastal environment.
- Students will demonstrate knowledge of the processes and scientific information needed for environmental managers to make decisions related to activities such as assessments, restoration and permitting.

**Physics concentration:**
- Students will master interdisciplinary approaches involving physical theory, computational modeling, experiments, and data analysis to relate geophysical processes and anthropogenic impacts to ecosystem dynamics across different spatial scales.
• Students will develop an advanced understanding of physical phenomena behind the development and characterization of novel materials for innovative energy-harvesting technologies.

• Students will develop skills needed to utilize the fundamental understanding of Earth’s physical processes in business/management decision making.

1.3. Structure—Details
The proposed structure for the Ph.D. program includes a set of five core courses followed by additional courses in the concentration areas of Energy, the Environment, or Earth Physics. The core courses will be required for every Ph.D. student and should be completed within a student’s first two years of the program. Course work within the concentration areas will be flexible, allowing students to pursue a broad range of interdisciplinary options, including business, management, and economics courses. We have packaged some of these options into “course modules”, which are a small grouping of similar courses tailored to provide students with the training and background they need to gain needed skills in these areas. We also have an “internship module” where students can partner with business, industry, or government agencies while working toward their degree. A minimum of 72 semester hours of credit beyond the bachelor’s degree will be required and at least 48 of these hours must be in non-dissertation course work, 18 in dissertation research and 6 in dissertation writing/completion.

Core courses (15 hrs):
The core courses, newly-developed for this Ph.D. program, are designed to provide every Ph.D. student with an interdisciplinary foundation that includes each of our concentrations. Pre-requisites for these courses include admittance in our program and completion of required leveling courses.

Core course list:
1. EEEP 600 Introduction to Earth’s physics (3 credit hours; Co-taught by Physics and the School of Geosciences). This course will provide students with a fundamental understanding of the physics behind Earth’s phenomena and their modern observational tools.

2. EEEP 601 Coastal environments and sustainability (3 credit hours; Taught by the School of Geosciences). This course will prepare students to understand the science and complex problems associated with the coastal environment.

3. EEEP 602 Advanced data analysis techniques for geophysical applications (3 credit hours; Taught by Physics). This course will cover a variety of geophysical modeling and processing techniques that emphasize relationships to energy and the environment.

4. EEEP 603 Petroleum exploration and reservoir characterization (3 credit hours; Taught by the School of Geosciences). This course will provide students with a strong background in the science behind oil and gas exploration and production, including geophysics.

5. EEEP 604 Interdisciplinary research challenges for building a sustainable Earth (this is the core capstone course - 3 credit hours; Taught jointly by faculty in the School of Geosciences and Physics). The course will introduce recent research progress and methodologies in solving the challenging problems associated with building a sustainable world. The course will be partly project-based, allowing students to optimally examine the interdisciplinary aspects of complex problem solving.

Concentration area coursework (27 hrs):
Courses offered within the concentration areas will be a combination of existing courses (graduate-level courses in the Geosciences, Physics, Biology, Business, Economics, Engineering, Mathematics, etc.) and
newly-developed courses (the mix is approximately 80% existing and 20% new courses). Within each of the three concentration areas we have developed a list of four required courses (12 hrs), as well as a pool of available courses (15 hrs). Note that students who may have already completed a required concentration course during their M.S. may substitute an alternate course from the pool. The student who is admitted to the program with a M.S. Degree in a closely-related field will be eligible to transfer up to 15 credit hours towards the concentration area coursework subject to approval by the Graduate School and the program faculty.

As with the core, there is not a specific sequence of courses required within any of the three concentration areas. This structure provides significant opportunity for students to meet the requirements of Interdisciplinary Geosciences training, including aspects of business, economics, and project management, while at the same time allowing an appreciable level of specialization and customization to meet individual learning needs. We feel that this "mix" of program content is precisely what is required to problem solve and meet the Energy, Environmental, and Earth Physics needs of Louisiana.

The four required courses within each concentration area are highlighted below and the pool of available courses includes approximately 50 graduate courses which are currently offered at least once every 2 years. Note that the required courses for the other two concentration areas also make up the available course pool for the primary concentration area, providing flexibility for students who want to cross concentrations. The students admitted to our program should have the existing pre-requisites for the majority of these courses; however, in some cases a leveling course may be needed or special permission must be granted.

**Energy concentration required courses (12 hrs):**
- GEOL 504. Exploration Geophysics. (2, 3, 3)
- GEOL 540. Advanced Structural Geology 1. (2, 3, 3)
- *GEOL 610. Unconventional Resources (3, 0, 3)
- PETE 578. Advanced Principles of Natural Gas (3, 0, 3)

**Environment concentration required courses (12 hrs):**
- BIOL 502. Quantitative Ecology (3, 0, 3)
- CIVE 506. Advanced Hydrology (3, 0, 3)
- ENVS 580. Fate of pollutants in soils and natural waters. (3, 0, 3).
- *GEOL 602. Advanced Aqueous Geochemistry (3, 0, 3)

**Earth Physics concentration required courses (12 hrs):**
- PHYS 521. Topics in Applied Physics: Applied Ion Beam Methods (1,2,3)
- *PHYS 601. Physical Properties of Minerals (2,1,3)
- *PHYS 602. Climate Physics (3,0,3)
- MATH 495G. Advanced mathematics for engineers and scientists.
(*= new offerings)

**Modules:**
According to a 2006 survey of recent Geosciences Ph.D. recipients, 75% indicated that management skills were a critical component of their jobs (Source: American Geological Institute/American Geophysical Union). In order to fill this need and encourage translation and entrepreneurial activities in Louisiana, we have developed two course modules for our students. The business module (12hrs)
consists of 4 MBA courses (in business, management, and economics) that will be taught through the College of Business. In order to meet the demand for high-level business courses (and MBA degrees) for non-traditional students, the College of Business has already created a series of graduate-level foundation courses that provide students from a non-business background with the essential knowledge they need for advanced MBA coursework. For our “business module” we have paired the appropriate graduate level survey courses with the more advanced MBA courses so that students can pick a combination of survey and upper level courses to satisfy the module. All the courses are graduate-level, but will be modified as necessary to include more stringent Ph.D.-level requirements and projects/reports.

The internship module is a maximum of 12 hours, 3 credits per semester. Credit for the internship will satisfy up to 12 of the dissertation research credits and will not be applied to the 48 hours of required coursework. Despite the use of research credit hours for the internship activities, students will still be required to complete the research related to their dissertation (i.e., the research project outlined in their dissertation proposal) and successfully defend the dissertation before graduating. Prior to initiation of the internship the student will be required to develop a plan with the company/agency and his/her committee as to what requirements or products are expected. At a minimum, the student will complete a final report and presentation of their work every semester. Details regarding the length and format of the report and presentation will be developed by the dissertation committee. The student, in collaboration with their committee, will also develop a plan for balancing internship requirements with the timely completion of their dissertation.

Other aspects of the Ph.D. program are largely traditional, including requirements of 6hrs of graduate seminar, 18hrs of dissertation research credits and 6 hours of dissertation writing. All students will be required to complete a program exam, dissertation proposal defense, a written dissertation, and a formal defense of the completed dissertation.

2. Need

2.1. State Demand

Louisiana’s “Blue Ocean” document suggests that the state is poised to spend $3 to $4 billion dollars/year on coastal restoration over the next 20 years. Our program will help provide the intellectual, research, and problem-solving capacity to address these needs. Louisiana also hosts some of the largest (unconventional) shale gas plays in the world and is a national and global hub for the energy industry. According to Blue Oceans estimates (sourced via the US Dept. of Commerce Regional Multipliers; input-output modeling system; McKinsey analysis), the areas of water management and new oil/gas production alone are likely to add 100,000 to 195,000 jobs in Louisiana in the next 20 years. A large portion of these jobs will require highly-qualified personnel with advanced degrees. The following tables demonstrate the need for highly-qualified geosciences/physical sciences employees in the State of Louisiana.

Table 2. Physical Sciences occupational projections for Louisiana (SOURCE: Occupational Supply Demand System)

<table>
<thead>
<tr>
<th>SOC Code</th>
<th>Minimum Degree Required</th>
<th>Occupational Projections for Louisiana</th>
<th>Projected average annual openings 2008-2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-2042</td>
<td>M.S.</td>
<td>Geoscientists</td>
<td>22</td>
</tr>
<tr>
<td>19-2012</td>
<td>Ph.D.</td>
<td>Physicists</td>
<td>1</td>
</tr>
<tr>
<td>19-2099</td>
<td>B.S.</td>
<td>Physical Scientists</td>
<td>2</td>
</tr>
</tbody>
</table>
The data in Table 2 suggest that 76 new graduate positions in geosciences/physical sciences are available annually. This number is substantially greater than Louisiana’s annual production of M.S. + Ph.D. students in Geology and Physics.

Table 3. Ph.D.-specific occupational projections for Louisiana in the areas associated with Earth and Physical Sciences. This does not include areas such as consulting and oil exploration (SOURCE: Occupational Supply Demand System)

<table>
<thead>
<tr>
<th>Occupational Code</th>
<th>Occupational Title</th>
<th>2010 Estimate</th>
<th>2020 Projected</th>
<th>10 Year Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-1021</td>
<td>Biochemists and Biophysicists</td>
<td>230</td>
<td>280</td>
<td>50</td>
</tr>
<tr>
<td>19-2012</td>
<td>Physicists</td>
<td>30</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>25-1051</td>
<td>Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary</td>
<td>50</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>25-1053</td>
<td>Environmental Science Teachers, Postsecondary</td>
<td>60</td>
<td>70</td>
<td>10</td>
</tr>
<tr>
<td>25-1054</td>
<td>Physics Teachers, Postsecondary</td>
<td>160</td>
<td>180</td>
<td>20</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The data in Table 3 indicates that we expect to see 10 (100 jobs divided by 10 years) new Physics and Geosciences doctoral position openings annually in Louisiana until 2020. Clearly, the addition of large numbers of biophysics/biochemistry positions skew this result, but this survey also fails to consider the demand for technical specialists in oil exploration and environmental consulting, regulation, and management. Considering that need, the state of Louisiana does not produce enough doctoral graduates in Geology or Physical Sciences to meet this demand. In addition to a clear demand for our graduates, the interest level among local, regional, and state industries, government, and business is high. We are gathering letters of support from numerous industry and government partners who confirm that they would be interested in hiring our graduates (these will be included in the full proposal).

2.2. BOR Master Plan
Our program specifically addresses the following goals and objectives in the BOR 2011 Master Plan:

Goal 1, Objective 1.7: “Develop a Skilled Workforce to Support an Expanding Economy.”
Our program will train a new generation of workers to support technical management and problem-solving in areas critical to the State of Louisiana. We specifically address this need in our curriculum through our business and internship modules. Contributing to the development of a qualified labor pool in the domain of geosciences will facilitate business attraction and retention.
Goal 2, Objective 2.1: “Maintain and Build Strength in Foundational Science and Technology Disciplines Identified in FIRST Louisiana.”
Both Earth Sciences and Physical Sciences are targeted by FIRST Louisiana and these are precisely the areas we combine for our Ph.D. program.

“Recruit, cultivate, and retain research talent in the foundational sciences.”
The addition of a Ph.D. program will allow us to greatly expand our research in Earth Sciences and Physics, which will attract quality research-active faculty and provide an incentive for us to keep them.

“Develop and maintain cutting-edge infrastructure and facilities for fundamental science and technology research.”
Although we already have and are building cutting-edge laboratory and field facilities, the Ph.D. program will provide new opportunities to advance our infrastructure. We can leverage the Ph.D. program to secure instrumentation through grants and can rely on the more highly-trained Ph.D. students to help operate and maintain equipment.

Goal 2, Objective 2.2: “Promote Multidisciplinary and Multi-Institutional Collaborative Research Efforts.”
Not only do our core curricula combine Physics and Geosciences, our concentration areas are multidisciplinary. The energy concentration relies on some coursework in Petroleum Engineering, and the environment concentration includes coursework in Biology and Civil Engineering. The Physics concentration will also strengthen existing collaboration with Mathematics and Biology at UL Lafayette through overlapping course work and collaborative research projects. Finally, we offer a business module that crosses into the disciplines of Economics, Management, and Accounting.

“Address multi-disciplinary and multi-institutional collaborations in campus research plans.”
Our multidisciplinary approach reflects the University of Louisiana at Lafayette’s strategic plan for advancing multidisciplinary research.

Goal 2, Objective 2.3: “Sustain and Advance Research Commercialization and Translational Activities that Promote Economic Development in Louisiana.”
We are embracing translational research as our primary focus with the aim of bridging the gap between fundamental and applied research. This focus includes an emphasis on economics and management courses, as well as opportunities for internships. This approach is designed to enhance commercialization.

“Promote Multidisciplinary and Multi-Institutional Collaborative Research Efforts.”
See above

“Foster networking and strategic collaborations between higher education, government, and Louisiana’s existing and prospective high-growth industry sectors.”
Louisiana’s High-growth industry sectors include Energy Production and Coastal Resilience. Our concentration areas include Energy and the Environment (with a focus on coastal systems). Hence, our Ph.D. framework and educational approach of embracing translational research will foster collaborations between higher education and industrial and government partners.
“Build capacity in areas of competitive advantage and target niches which align with campus and State research priorities.”

As described above, our target niches are closely aligned both with the research priorities of UL Lafayette and the State of Louisiana. By filling these niches we add value to our program for our students, our community, and society.

In summary, our proposed Ph.D. program will uniquely benefit Louisiana because:

- Our focus areas are closely aligned with the strategic focus areas identified by the BOR in the FIRST Louisiana framework.
- We combine these interrelated focus areas into one unique Ph.D. program as opposed to multiple programs administered by different colleges or administrative units.
- Our program is unique in its focus on providing educational and research activities at the Ph.D. level that bridge the gap between fundamental and application-based research. This problem-solving approach will result in more tech transfer, research commercialization, and business partnerships, providing a real return on investment for Louisiana.
- The Ph.D. program will greatly increase our ability to secure more external research funding and provide more national and international recognition for the state of Louisiana.
- The Ph.D. program will build on and create a positive feedback with our existing M.S. programs.
- Additional costs for program implementation are limited because we can rely heavily on existing faculty, staff, research infrastructure, and graduate course offerings.
- The Ph.D. program will increase the level of STEM degree attainment within the state by providing more upper-level educational opportunities in areas of high growth where more intellectual capacity is needed.

2.3. National Demand

In addition to the need for our program in the state of Louisiana, which was detailed in the above section, national employment trends also suggest the need for more highly-trained Earth and Physical Scientists (Table 4).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>211100</td>
<td>Oil and gas exploration</td>
<td>6,260</td>
<td>5,680</td>
<td>25.3%</td>
</tr>
<tr>
<td>541600</td>
<td>Management, scientific, and</td>
<td>5,540</td>
<td>9,160</td>
<td>40.8%</td>
</tr>
<tr>
<td></td>
<td>technical consulting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>933300</td>
<td>State government not education</td>
<td>2,980</td>
<td>3,230</td>
<td>14.4%</td>
</tr>
<tr>
<td>931100</td>
<td>Federal government</td>
<td>2,580</td>
<td>2,780</td>
<td>12.4%</td>
</tr>
<tr>
<td>213100</td>
<td>Mining support</td>
<td>1,920</td>
<td>1,610</td>
<td>7.1%</td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td>19,280</td>
<td>22,460</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Projected employment by industry for Physicists (SOC Code 19-2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>541710</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>931100</td>
</tr>
<tr>
<td>611000</td>
</tr>
<tr>
<td>622000</td>
</tr>
<tr>
<td>SOC Code</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>541600</td>
</tr>
<tr>
<td>Totals</td>
</tr>
</tbody>
</table>

Projected employment by industry for Physical Scientists (SOC Code 19-2099)

<table>
<thead>
<tr>
<th>SOC Code</th>
<th>Industry Description</th>
<th>2006 Employment</th>
<th>2016 Employment</th>
<th>2016 Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>931100</td>
<td>Federal government</td>
<td>8,410</td>
<td>9,050</td>
<td>43.2%</td>
</tr>
<tr>
<td>541710</td>
<td>Research and development in physical, engineering, and life sciences</td>
<td>5,670</td>
<td>6,400</td>
<td>30.5%</td>
</tr>
<tr>
<td>611000</td>
<td>Educational services</td>
<td>3,130</td>
<td>3,510</td>
<td>16.7%</td>
</tr>
<tr>
<td>551100</td>
<td>Management of companies</td>
<td>950</td>
<td>990</td>
<td>4.7%</td>
</tr>
<tr>
<td>541600</td>
<td>Management of scientific and technical consulting</td>
<td>540</td>
<td>1,010</td>
<td>4.8%</td>
</tr>
<tr>
<td>Totals</td>
<td>18,700</td>
<td>20,960</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Projected employment by industry for Environmental Scientists (SOC Code 19-2041)

<table>
<thead>
<tr>
<th>SOC Code</th>
<th>Industry Description</th>
<th>2006 Employment</th>
<th>2016 Employment</th>
<th>2016 Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>933300</td>
<td>State government</td>
<td>21,420</td>
<td>23,220</td>
<td>29.6%</td>
</tr>
<tr>
<td>541600</td>
<td>Management, scientific and technical consulting</td>
<td>18,010</td>
<td>33,380</td>
<td>42.5%</td>
</tr>
<tr>
<td>934300</td>
<td>Local government</td>
<td>10,460</td>
<td>11,290</td>
<td>14.4%</td>
</tr>
<tr>
<td>931100</td>
<td>Federal government</td>
<td>6,080</td>
<td>6,540</td>
<td>8.3%</td>
</tr>
<tr>
<td>611000</td>
<td>Educational services</td>
<td>3,660</td>
<td>4,100</td>
<td>5.2%</td>
</tr>
<tr>
<td>Totals</td>
<td>59,630</td>
<td>78,530</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Projected employment by industry for Natural Resource Managers (SOC Code 11-9121)

<table>
<thead>
<tr>
<th>SOC Code</th>
<th>Industry Description</th>
<th>2006 Employment</th>
<th>2016 Employment</th>
<th>2016 Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>541710</td>
<td>Research and development in the physical, engineering and life sciences</td>
<td>11,120</td>
<td>13,950</td>
<td>45.5%</td>
</tr>
<tr>
<td>931100</td>
<td>Federal government</td>
<td>9,720</td>
<td>10,470</td>
<td>34.2%</td>
</tr>
<tr>
<td>933300</td>
<td>State government</td>
<td>3,070</td>
<td>3,340</td>
<td>10.9%</td>
</tr>
<tr>
<td>611000</td>
<td>Educational services</td>
<td>2,550</td>
<td>2,870</td>
<td>9.4%</td>
</tr>
<tr>
<td>Totals</td>
<td>26,460</td>
<td>30,630</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

These data (Table 4) show a trend of exceptionally high national job growth in the areas where our students can be hired. The major employment sectors by 2018 will include (1) Management, scientific, and technical consulting; (2) Research and development, and the (3) Federal government.

In their 2011 Geoscience Workforce Report, the American Geological Institute (AGI) confirmed that demand for geoscience positions is increasing rapidly and “the supply of newly trained geoscientists falls short of geoscience workforce demand and replacement needs”. Counting the replacement rate for attrition of the aging Geoscience workforce, aggregate job projections for the Geosciences show a 35% increase in jobs over the next decade (based 2008-2018; AGI, 2011). Moreover, AGI’s 2011 report demonstrates that although many geoscience doctorates still find work in postdoctoral positions, over the last decade there has been a distinct increase in the number of geoscience doctorates finding employment in industry and a decrease in the percentage of doctorates gaining employment in government or academic positions (compiled from data from the NSF’s Survey of Earned Doctorates). This trend of Geoscience Ph.D.s going into industry is corroborated by a 2011 survey of members of the Society of Exploration Geophysicists (SEG). The survey showed that 22.4% of the SEG members held a doctorate, 42.2% held a master’s, and almost all the respondents held a bachelor’s degree. The majority of the survey respondents were from major oil and gas companies and exploration service companies –
not academia. The new demand for doctoral-level training in industry in addition to government and academia is why our educational approach is sorely needed.

The private sector is the primary employer of Physics Ph.D. recipients. In accordance with the statistical data provided by the American Institute of Physics, the majority (60%) of Ph.D. Physics graduates between 2007 and 2008 who initially went into permanent employment positions were in the private sector. According to the NSF Survey of Physics Doctoral Recipients, in 2006 the private sector was the largest single employment base of Physics Ph.D.s: about 42% (the next highest was four year colleges, at 23%). For Physics Ph.D.s, careers in business and industry are not only the most available, but also among the most highly paid. (Crystal Bailey, “Supply and Demand: A Picture of Physics Ph.D. Employment in the US”, Physics Careers in Industry and Government Workshop Forum on Industrial and Applied Physics (FIAP), Dallas, March 2011).

3. Relevance
The University of Louisiana at Lafayette is the largest member of the University of Louisiana System and is designated (within the Carnegie classification) as a Research University with high research activity. In addition to the pursuit of excellence in education and research at all levels, the mission of the University is to promote regional economic and cultural development, to explore solutions to national and world issues, and to advance its reputation among its peers. Our proposed Ph.D. program would strengthen UL Lafayette’s existing role as a developing research university and support UL Lafayette’s mission by producing graduates who will strengthen the local and regional economy and be able to problem-solve to help find solutions to societal issues at the state, national, and global levels.

The proposed Interdisciplinary Geoscience Ph.D. program (Earth’s Energy, Environment, and Physics) is an institutional priority for UL Lafayette because the need and demand (described above) are here now and the focus of the program supports the strategic directions for research and education in the university. UL Lafayette aims to become a leader in research and education focused on energy (traditional, unconventional, and renewable) and the environment (mainly coastal systems). We are positioning ourselves as an institution to become leaders in translational research in these areas, bridging the gap between fundamental and application-based research. This same approach was recently developed for the Systems Engineering Ph.D. program at UL Lafayette and has been extremely successful in garnering industry support and attracting students from our region. Our aim (both at the University level and programmatic level) is to enhance tech transfer, research commercialization, and business partnerships that can provide a tangible return on investment for the state of Louisiana.

4. Student Demand
Our proposed program is purposefully designed not to emulate traditional Geology (CIP 40.0601), Environmental (03.0104) or Physics (CIP 40.0801) programs, but instead combine components within the Geosciences and Physics to forge interdisciplinary research in the areas of Earth’s Energy, Environment, and Physics (CIP code 40.0699). Despite the fact that we are proposing a unique Ph.D. program, we recognize that of our state’s public institutions, individual Ph.D. programs in Geology, Physics, and Environmental Sciences are present at Louisiana State University. These are excellent programs, but ours is substantially different than each of these in its structure, scope, and focus, suggesting that the students who choose our program will be largely unique to existing programs.

Table 5 presents a comparison of our existing M.S. programs in Geology and Physics to other M.S. programs in the state of Louisiana. Considering completers in both Physics and Geology (because both provide the foundation for our Ph.D. program), the University of Louisiana at Lafayette has the
dominant market share. Because of our translational research focus, the introduction of a Ph.D. is also anticipated to be a recruitment tool for additional M.S. students.

Table 5. Illustration of market share of existing Geosciences and Physics M.S. programs in Louisiana (SOURCE: BOR inventory of existing programs comparison of market share at the M.S.-level)

<table>
<thead>
<tr>
<th>Institution</th>
<th>2010 CIP Code</th>
<th>Degree</th>
<th>Subject/Discipline</th>
<th>Average Completers (5-Year)</th>
<th>Relative Market Share %</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.S.U. and A&amp;M College</td>
<td>400601</td>
<td>M.S.</td>
<td>GEOLOGY</td>
<td>8</td>
<td>25.0</td>
</tr>
<tr>
<td>University of New Orleans</td>
<td>400601</td>
<td>M.S.</td>
<td>EARTH &amp; ENVIRONMENTAL SCIENCES</td>
<td>4</td>
<td>12.5</td>
</tr>
<tr>
<td>L.S.U. and A&amp;M College</td>
<td>400801</td>
<td>M.S.</td>
<td>PHYSICS</td>
<td>4</td>
<td>12.5</td>
</tr>
<tr>
<td>Louisiana Tech University</td>
<td>400801</td>
<td>M.S.</td>
<td>APPLIED PHYSICS</td>
<td>4</td>
<td>12.5</td>
</tr>
<tr>
<td>University of New Orleans</td>
<td>400801</td>
<td>M.S.</td>
<td>APPLIED PHYSICS</td>
<td>2</td>
<td>6.2</td>
</tr>
<tr>
<td>University of Louisiana at Lafayette</td>
<td>400601</td>
<td>M.S.</td>
<td>GEOLOGY</td>
<td>*7</td>
<td>**31.3</td>
</tr>
<tr>
<td>University of Louisiana at Lafayette</td>
<td>400801</td>
<td>M.S.</td>
<td>PHYSICS</td>
<td>3</td>
<td>**31.3</td>
</tr>
</tbody>
</table>

*Most recent running 5-year average (2008-2012) is 8.2, but we use the numbers in this table for direct comparison to other programs.
**UL Lafayette market share calculated based on combining Geology and Physics because students from both programs will fit into our proposed Ph.D. program.

Over the last 5 years our Geology and Physics M.S. programs have together produced, on average 11.2 graduates (8.2 Geology and 3 Physics) per year (and have brought in approximately $100,000 on average per faculty member per year in external funding). For the last 2 years the School of Geosciences at UL Lafayette has had the highest enrollment of M.S. students in a Geoscience-related degree program in the State of Louisiana. Our decadal enrollment trends in the School of Geosciences (both B.S. and M.S.), in its current and former structure, have a distinct upward trend that reflects the strength of our existing program and the strength we bring to the table for expansion (Figure 2). Note that the even sharper rise in enrollments for 2012 includes the addition of (31) students in the Environmental Science B.S. degree program which is part of the School of Geosciences. Our Physics program is also well-positioned to make the transition to a Ph.D., as the majority of Physics graduates at B.S. and M.S. levels enter Ph.D. programs.
Our M.S. programs are already nationally and internationally recognized. For example, in 2012 we admitted new M.S. students from universities including but not limited to

- Louisiana State University, Louisiana
- Coastal Carolina University, South Carolina
- Marietta College, Ohio
- Central Missouri State University, Missouri
- University of Colorado at Boulder, Colorado
- Georgia College, Georgia
- University of Oklahoma, Oklahoma
- Purdue University, Indiana
- University of Waterloo, Ontario, Canada
- Semnan University, Semnan, Iran
- Obafemi Awolowo University, Nigeria
- Imo State University, Nigeria

A survey was conducted in October of 2012 of undergraduates and graduate students majoring in geology, physics and environmental sciences at UL Lafayette. Of the 169 student respondents, 38% expressed an intent to continue their graduate education on a full-time basis. When asked, “if UL Lafayette offered a Ph.D. program in your field of study that would prepare you for success in either the academic environment or in industry, would you be interested in enrolling,” 47% responded “yes.” Corroborating this, 39% indicated (on a 1 to 10) scale that they would likely pursue a Ph.D. in Geosciences at UL Lafayette, while 17 students indicated they would definitely enroll in such a program (by indicating a 9 or 10, where 10 represented “complete certainty”). We also inquired about geographic preferences for school location in pursuing a Ph.D. in Geosciences. Fifty-six percent expressed a definite interest in staying in the state of Louisiana, and 32% (or 54 students) indicated an absolute preference for continuing on to their doctoral education at UL Lafayette. Interestingly, 33% of the sample indicated that they would pursue a Ph.D. in Geosciences but only if it was offered at UL Lafayette. The primary two motivators for students seeking a Ph.D. in Geosciences were: (1) the chance to learn more about their profession, (2) the opportunity to earn a higher salary. Results also suggest that about 55% of respondents would intend on working in academics and 45% in industry upon completion of a Ph.D. in Geosciences. Ten students indicated they had already decided to pursue a Ph.D. immediately following graduation as a definite career plan. The evidence presented in this survey demonstrates that UL Lafayette could serve as the only feeder population into the program and would allow it to be immediately viable. Of course, intellectual diversity would be sought and applicants from around the state, nation, and international locations are anticipated should the Ph.D. program in Geosciences be approved.

In addition to having a strong base of students in our existing programs, we have developed a recruitment strategy to gain additional enrollment. Our recruitment strategy is comprised of 3 key components, (1) establishing pipelines through partnerships with other state, national, and international institutions; (2) An aggressive traditional recruitment campaign; and (3) A non-traditional marketing campaign that utilizes social media.

In 2011 the UL Lafayette Physics department signed a Memorandum of Understanding (MOU) with the University of New Orleans (UNO) and Southeastern Louisiana University (SELU) to share required and elective Physics courses at the B.S. and M.S. levels to enrich offerings and to strengthen the
attractiveness of the programs through a broader curriculum. This current collaboration will aid in recruiting interested students from SELU, which does not offer graduate degrees in Physics or Geosciences. We are also planning to expand our collaboration with UNO to share Ph.D. level courses and student's co-mentoring with their Engineering and Applied Science program. In June 2011 UL Lafayette also signed a MOU with the Nizhny Novgorod State University, Russia. This collaboration provides new opportunities for recruitment of international students. The School of Geosciences at UL Lafayette is also in the process of signing a MOU with Tribhuvan University in Nepal. We have established a close relationship with Tribhuvan and other Nepalese universities through our joint research. We already have students in Nepal who would like to enter our program.

Our non-traditional recruitment efforts will include utilization of various social media mechanisms including Facebook, Twitter, and Linked-in. We will post to institutional pages as well as those of professional associations, economic development agencies and industry partners. UL Lafayette now has over 52,000 “fans” alone. We also have the expertise at the University to plan and implement an innovative social media recruitment campaign.

By projecting the results from our survey of existing students and considering a modest influx of outside students (national and international) from our recruiting efforts, we constructed estimates of enrollees and completers for the first six years in Table 6. In addition to these projections, we illustrate in Table 6 how these students are likely to be supported financially, as this can be a limiting factor for enrollment. Over the six-year initiation period, the number of students will grow from a starting population of five in Year 1 to an estimated steady-state population of approximately 28 students by Year 7. The student/faculty ratio we project is less than 2:1. The first graduates are expected to finish their degree requirements by Year 4 with more in Year 5. The steady-state annual program graduation rate is expected to be five or more graduates per year.

| Table 6. Estimated enrollees, completers, and their likely modes of funding for the initial 6 years. |
|------------------------------------------------------|--------|--------|--------|--------|--------|--------|
| Estimated Enrollment                                 | 5      | 9      | 14     | 16     | 19     | 23     |
| Estimated Completers                                 | 0      | 0      | 0      | 1      | 4      | 5      |
| University Funds GA/TA                               | 1      | 1      | 1      | 1      | 1      | 1      |
| Self-Funded                                          | 0      | 1      | 2      | 2      | 2      | 2      |
| Corporate- Funded                                    | 1      | 2      | 6      | 8      | 8      | 11     |
| External Research Funds                               | 3      | 5      | 5      | 5      | 8      | 9      |

5. **Cost**

The program can be fully implemented with no new costs to the University.

5.1. **Faculty**

As a result of comprehensive program review in 2010-11 and the elimination of a number of degree programs, a new School of Geosciences integrated the programs of Geology and Environmental Sciences, which was formerly part of the Renewable Resources program. By consolidating these
programs, we have added three additional research-active faculty and 2 full-time instructors, as well as 2 academically-qualified research scientists. This expanded faculty, along with our existing M.S. programs in Geology and Physics, provide us with the necessary human (faculty and staff) and research (labs, equipment, and materials) infrastructure to and support a Ph.D. program. In addition, the restructuring resulted in two administrative positions within the School of Geosciences. One of these will be dedicated to the Ph.D. program.

In preparation for the new program, targeted 400-level courses will be converted to 400(G) courses. This action will allow M.S. students to enroll in those courses for elective credit and free M.S. faculty to develop new doctoral-level courses and later teach in the Ph.D. program. A number of additional initiatives will be implemented as needed to assure long-term support of the program including:

1. Teaching loads will be re-arranged to increase teaching for faculty and instructors that are not research active.
2. At least one Ph.D. student will be assigned to the basic introductory geology courses thus freeing terminally-qualified faculty; and
3. Academically-qualified adjunct faculty working for federal agency partners will be tasked as necessary to teach appropriate courses.

The School of Geosciences is well-positioned to support the proposed doctoral program based on projections presented in Table 6.

5.2. Graduate Assistantships
The University will dedicate no new funds for Graduate Assistantships. Rather, two existing masters-level GA positions will be combined to fund one Ph.D. student. Other assistantships will be funded by external research funds and by industry partners, either through the creation of company-sponsored assistantship or corporate funding as a business recruiting tool for graduates. The efforts of the Office of Development will be engaged to develop a corporate funding campaign, and evidence of success will be provided in the full proposal.

5.3. Supplies, Operating, Travel
No additional funds will be required.

5.4. Library
Ph.D. students will have full access to both the UL Lafayette and the LSU libraries, as well as resources provided through the LOUIS consortium, so no additional library costs are anticipated.

CERTIFICATION:

__________________________________________
Chief Academic Officer

__________________________________________
Date

__________________________________________
Chancellor/President

__________________________________________
Date
Item E.5.  University of Louisiana at Monroe’s request for approval of a Proposal to establish a Post Baccalaureate Certificate (PBC) in Computer Information Systems in the College of Business Administration.

EXECUTIVE SUMMARY

The University of Louisiana at Monroe (ULM) proposes to offer a Post Baccalaureate Certificate (PBC) in Computer Information Systems in the College of Business Administration. The proposed program will prepare individuals who have earned a baccalaureate degree in a discipline other than computer information systems who are seeking functional competency in an information systems related field.

The program is being created in response to a local market need for well-trained employees with information systems development and network administration skills. CenturyLink, the third largest telecommunications firm in the United States, has a high demand for employees with information systems development and administration skills. The PBC strives to meet the educational requirements of individuals who do not currently possess the minimum educational qualifications or skills required to pursue careers in high demand occupations related to software application development, database analysis, and network administration.

According to the United States Department of Labor and the Bureau of Labor Statistics, employment in areas related to computer information systems development and network administration is expected to grow by approximately 26 percent between 2010 and 2020 in the U.S., which is much faster than the average for all occupations. This growth is expected to be even more pronounced in the Northeast Louisiana region, with an overall 47 percent increase in the number of entry level computer information systems related positions.

Currently there are no similar post baccalaureate certificate programs offered by either public or private institutions in Louisiana. The proposed 36-hour program includes six required core courses, with the remainder being electives. Classes will be offered in the traditional format and will utilize course content and teaching methods that will allow students to complete the program in 24 months. ULM projects that the program will begin with an enrollment of 2 students and increase to 15 students by 2017. By the end of the third year, it is projected that there will be five completers and seven by year five.
ULM has sufficient technology, facilities, and library holdings to support the proposed program. No additional faculty will be needed. Revenue generated from tuition and fees of the proposed program will be more than adequate to offset additional expenses that may result from the hiring of adjunct faculty and/or overload pay. No additional funding will be required.

The proposed program will be administered in the College of Business Administration. If approved, the program is expected to begin as early as Summer 2013.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves University of Louisiana at Monroe’s request for a Proposal to establish a Post Baccalaureate Certificate (PBC) in Computer Information Systems in the College of Business Administration.
November 5, 2012

Dr. Tom Layzell
Interim President
University of Louisiana System
1201 North Third Street – Suite 7-300
Baton Rouge, LA 70802

Dear Dr. Layzell:

The University of Louisiana at Monroe requests approval of the attached proposal for the Post-Baccalaureate Certificate in Computer Information Systems in the College of Business Administration.

We strongly believe that the certificate program will meet the educational requirements for individuals who have earned a baccalaureate degree in a discipline other than computer information systems, but who are seeking functional competency in an information systems related field. The program also will assist in meeting the regional workforce needs for skilled information technology professionals.

We respectfully request that this proposal be placed on the agenda for the Board of Supervisors meeting on December 4, 2012.

Sincerely,

Nick J. Bruno, Ph.D.
President
**LOUISIANA BOARD OF REGENTS**

**REQUEST FOR AUTHORITY TO OFFER A NEW PROGRAM**

**SUBMIT 1 PRINTED COPY AND 1 ELECTRONIC VERSION (EMAIL or DISK)**

<table>
<thead>
<tr>
<th>Name of Institution Submitting Proposal</th>
<th>University of Louisiana at Monroe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Degree to be Awarded Upon Completion</td>
<td>PBC in Computer Information Systems</td>
</tr>
<tr>
<td>Recommended 2010 CIP Taxonomy</td>
<td>52.1201</td>
</tr>
<tr>
<td>Date to be Initiated</td>
<td>June 2013</td>
</tr>
<tr>
<td>Name of Department or Academic Subdivision Responsible for the Program</td>
<td>Dept. of Computer Science and Computer Information Systems</td>
</tr>
<tr>
<td>Name, Rank, and Title of Individual Primarily Responsible for Administering the Program</td>
<td>Dr. William Barnett, Assoc. Professor and Head</td>
</tr>
</tbody>
</table>

**Date Approved by Governing Board**

<table>
<thead>
<tr>
<th>Date Received by Louisiana Board of Regents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Affairs Committee Review</td>
</tr>
<tr>
<td>Board Action (Nature of Action)*</td>
</tr>
<tr>
<td>Date of Board Action</td>
</tr>
</tbody>
</table>

* Prior to final action by the Board of Regents, no institution may initiate or publicize a new program.
THE UNIVERSITY OF LOUISIANA AT MONROE PROPOSAL – POST
BACCALAUREATE CERTIFICATE IN COMPUTER INFORMATION SYSTEMS

1. PROGRAM DESCRIPTION

a. Title, degree/certificate level: Post Baccalaureate Certificate in Computer Information Systems (CIP Code 52.1201)

b. Description: This PBC in computer information systems program is designed for individuals who have earned a baccalaureate degree in a discipline other than computer information systems and who are seeking functional competency in an information systems related field. The program focuses specifically on information technology related professions and should not, therefore, be considered as equivalent to the comprehensive business degree programs offered by ULM.

c. Objectives of the proposed program:
This program strives to meet the educational requirements for individuals attempting to transition from non-technology related occupations into the computer information systems related positions in the region. The program is intended to support the overall educational mission of the university by:

- Helping meet the regional workforce needs for skilled information technology professionals
- Meeting the entry-level educational requirements for individuals with non-information technology related degrees pursuing computer information systems related positions
- Supporting the professional development of individuals who seek to obtain a formal educational credential in the information technology field

d. List and describe the program curriculum (i.e., required courses), in sequence or term by term.

Courses, all of which exist already, will be offered in such a manner that students could complete all course requirements in 24 months.

Certificate Program Content/Requirements:

1. Baccalaureate Degree
2. University Admission
3. Completion of 3 hours of introductory computer programming with a grade of C or better
4. Successful completion of each required course listed below with a minimum grade of "C"
5. Completion of at least 15 hours of the required courses listed below in-residence at ULM
6. Completion of 18 hours of information systems-related courses, including:
   a. CINS 3002 (Intermediate Business Programming – 3 cr. Hrs.)
b. CINS 3006 (Database Application Development – 3 cr. Hrs.)
c. CINS 3040 (Networks and Data Communications – 3 cr. Hrs.)
d. CINS 3041 (Advanced Networking – 3 cr. Hrs.)
e. CINS 4030 (Information Systems Analysis – 3 cr. Hrs)
f. CINS 4035 (Information Systems Design – 3 cr. Hrs)

e. Describe how the proposed program will be offered, e.g., traditionally, online, via
interactive video, hybrid, etc. Discuss possibilities for a cooperative program, cross-
enrollment options, or other manners of sharing/extending resources and access.

Program will be delivered in the traditional classroom environment. The CIS program is
part of the ULM Night School program. All CIS courses are offered on a recurring day
and nighttime rotation to support students working varying work schedules.

The technological focus of this program limits options for extended access via online
delivery mechanisms. The most promising possibilities for cooperative programs would
be between the university and industry. Course content and teaching methods used in
this program are oriented towards generating graduates that can be quickly integrated into
organizational development teams. The content of the program has been vetted by
software engineering team management at CenturyLink to ensure that it would meet the
educational requirements for entry level systems analysts/software engineers.

f. Furnish documentation of the approval of the proposed program by the institution's
Governing Board.

2. NEED

a. Describe how the proposed program fits within the institution’s existing role, scope
and mission.

According to the US Department of Labor and the Bureau of Labor Statistics,
employment in areas related to computer information systems development and network
administration is expected to grow by approximately 26 percent between 2010 and 2020
in the US, which is much faster than the average for all occupations (US Department of
Labor, 2011). This growth is expected to be even more pronounced in the Northeast
Louisiana region (Region 8), with an overall 47 percent increase in the number of entry
level computer information systems related positions. The 2011 average annual salary
for individuals in computer information systems related fields within was $53,439 (US
Department of Labor, 2011).

ULM is currently charged with meeting the regional educational needs of students and
employers. This program provides an alternative approach for preparing individuals who
do not currently possess the minimum educational qualifications or skills required to
pursue careers in high demand occupations related to software application development,
database analysis, and network administration.

The PBC in Computer Information Systems is being proposed as a solution to a market
need for well-trained employees with information systems development and network
administration skills as identified in surveys of regional job growth and by senior
management of local businesses, in particular CenturyLink. The need for computer systems analysts in this region is expected to grow 53% by 2020, and that demand for network systems architects and administrators is projected to grow by 44%.

At this time, CenturyLink has a growing need for employees with information systems development and administration skills. CenturyLink, much like ULM, has played a significant role in the development of our regional community for many years. CenturyLink’s phenomenal growth through its successful operations and mergers and acquisitions is a point of pride for the region and state of Louisiana. CenturyLink, the third largest telecommunications firm in the United States, and one of only three Fortune 500 companies domiciled in Louisiana, has an annual payroll of approximately $90 million in Monroe and employs nearly 1,500 employees in the Monroe area. CenturyLink’s continued success and ability to remain in Louisiana is heavily dependent upon their access to a well-trained employee pool, specifically those with backgrounds in information technology related disciplines. This growing demand for qualified information technology professionals also impacts the availability of these critical skills to the broader business community across northern Louisiana as well.

By creating the PBC in Computer Information Systems, we will:

- Help meet the increasing demand from CenturyLink and other regional businesses for highly skilled information technology professionals.
- Provide an alternative educational path for individuals displaced by downturns in other occupational fields.

b. Has the proposed program, or a similar one, been offered at the institution previously?

No

c. List similar programs offered at other institutions (public and private) in Louisiana.

No similar programs exist.

d. If similar programs exist in Louisiana, why is an additional program needed? Indicate manpower needs, including interest on the part of industry, academia, governmental agencies, or other institutions. N/A

e. If this program is approved, will its approval result in the termination of phasing out of existing programs? That is, could this program be considered a replacement program?

No

f. Describe how the proposed program will further the mission of the institution and support initiatives identified in the Board of Regents’ Master Plan for Public Postsecondary Education in Louisiana: 2011.

As identified, ULM serves as a regional educational institution meeting the needs of individuals and employers. This PBC directly relates to numerous objectives of the
Board of Regents’ Master Plan for Public Postsecondary Education in Louisiana: 2011. Specifically, this proposal addresses the following objectives:

Objective 1-3: Increase the number of adults age 25 and older enrolled in postsecondary education programs. Our PBC proposal impacts “adults with a college degree who need additional credentials, coursework, or skills for career advancement.”

Objective 1-7: Develop a skilled workforce to support an expanding economy. It is well documented that computer information systems is a high-demand area in the nation, state, and within our region.

3. STUDENTS

a. Project the enrollment and estimate the number of graduates expected for the proposed program for the first five years by level of student and with a justification for the projections.

Currently, there are at least 2 students pursuing degrees in computer information systems who already possess degrees in other non-technology related fields. The program receives between 5 and 10 inquiries per year from individuals wishing to pursue baccalaureate or above certification in the information systems field.

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</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>2</td>
<td>5</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Graduates</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

b. Indicate the source of students from existing programs or students who might not otherwise be attracted to the institution.

We are looking to attract individuals to this program from two primary sources. The first of these are professionals displaced from declining industries within the region, or who are attempting to re-enter the workforce. These individuals possess baccalaureate degrees outside the information technology area, or have not remained current in the field. The second group is individuals currently working, but who are in need of a comprehensive information systems development background to retain their position or advance.

c. What preparation will be necessary for students to enter the program?

Certificate Program Entrance Requirements:

1. Baccalaureate Degree from an accredited institution
2. University Admission
3. Completion of 3 hours of introduction to programming with a grade of C or better

d. Provide enrollment data for closely related programs currently offered at the institution. If the proposed program is an expansion of an existing program, give the past four years’ enrollments in existing programs by level, and number of degrees granted.
There are no similar PBC’s on campus. However, the BBA degree in computer information systems is related in that the courses are the same as required for the major. Enrollment numbers are for Fall semesters while graduation numbers are for the academic year.

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<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>105</td>
<td>126</td>
<td>98</td>
<td>89</td>
</tr>
<tr>
<td>Graduates</td>
<td>17</td>
<td>14</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

4. FACULTY

a. List the present faculty members who will be most directly involved in the proposed program. Indicate for each faculty member: name; date of appointment; present rank; degrees (by field) and the institutions granting them; present credits, contact hours, and student credit hours produced; and other assignments.

Faculty Name: Dr. Virginia Eaton
Date of Appointment: 1988
Rank: Professor of Computer Science
Degree: Ed.D., Vanderbilt University
Present Credits: 9
SCH’s Produced: 180
Other Assignments: Research and Service

Faculty Name: Dr. William Barnett
Date of Appointment: 2000
Rank: Associate Professor of Computer Information Systems
Degree: Ph.D., University of Texas at Arlington
Present Credits: 9
SCH’s Produced: 207
Other Assignments: Faculty Chair, Computer Information Systems

Faculty Name: Dr. James Wood
Date of Appointment: 1995
Rank: Associate Professor of Computer Information Systems
Degree: Ph.D., University of Texas at Arlington
Present Credits: 9
SCH’s Produced: 351
Other Assignments: Research and Service

Faculty Name: Dr. Paul D. Wiedemeier
Date of Appointment: 2005
Rank: Associate Professor of Computer Information Systems
Degree: University of Missouri - Columbia
Present Credits: 9
b. Calculate the present student-faculty ratio in the subject matter field or department in which the proposed program will be offered. The basis for this calculation should be full-time equivalent students and faculty and should be computed based on all students taught rather than the student majors or other related groupings.

2012 FTE Faculty 2.8
2012 FTE Students 47
Student-Faculty Ratio: 16.8 to 1

c. Project the number of new faculty members needed to initiate the proposed program for each of the first five years. If the proposed program will be absorbed in whole or part by present faculty, explain how this will be done.

We do not anticipate hiring full-time faculty to meet the demands of this program. Currently, excess capacity exists in most upper-level computer information systems courses. The exceptions to this are courses in networking and information security, which are required courses in both the computer information systems and the computer science degree programs. However, adjuncts could be used to offer additional sections as needed while continuing to support the AACSB-International accreditation requirements for programs in the College of Business Administration.

d. Explain if recruiting new faculty members will require an unusual outlay of funds or unique techniques. For example, will a special chair of instruction be required to attract a nationally recognized person?

We do not plan to recruit a new faculty member to support this program.

e. Describe involvement of faculty, present and projected, in research, extension and other activities and the relationship of these activities to the teaching load.

The ULM Computer Information Systems program is accredited under the College of Business Administration by AACSB-International. As part of the College of Business Administration, all faculty members teaching in the program are required to conduct research and publish their findings in peer reviewed journals. Specifically, program faculty who have earned a PhD are required to publish a minimum of two peer-reviewed journal articles in a five year period, as well as three other intellectual contributions. The creation of this PBC will not add to the present expectations of faculty teaching in the program. Because of the research expectations, faculty members teaching in the program receive a course reduction each semester.

5. LIBRARY AND OTHER SPECIAL RESOURCES

a. Are present library holdings in related fields adequate to initiate the proposed program?

Yes
b. Will the library holdings need to be expanded and improved to meet program needs of the program in the first five years? If so, what types will be needed: books, periodicals, reference books, primary source materials, etc.?

Not necessary to expand library holdings

c. Do other institutions have library resources being used or available to faculty and students for the proposed program?

Current resources utilized by existing students on campus and through existing relationships with sister institutions are more than adequate to support this program.

d. Indicate or estimate total expenditure for the last two completed fiscal years in library acquisitions for the subject matter fields or departments in which the proposed program will be offered, or which are related to it.

2010-2011 Computer Information Systems $1500 (estimated)
2011-2012 Computer Information Systems $2500 (estimated)

e. Project library expenditures needed for the first five years of the proposed program.

The current level of funding of approximately $1,500 - $2,500 per year should be sufficient. This amount was estimated by the Dean of the Library from costs of databases that are shared across the system.

f. What additional special resources, other than library holdings, will be needed?

None

6. FACILITIES AND EQUIPMENT

a. Describe existing facilities (classrooms, laboratories, offices, etc.) available for the proposed program.

The College of Business, which includes the computer information systems program, recently moved into Colonel William T. Hemphill Hall, a 10-year old 50,000 square foot building. The computer information systems program is delivered in classrooms equipped with instructional technology including symposiums and ceiling mounted projectors. Computer Information Systems operates a dedicated computer networking and information security lab in Hemphill Hall. The program also has access to the various computer labs in the building, and across campus. No additional facilities are required for the implementation of this proposal.

b. Describe present utilization of these facilities where facilities are assigned to the department.

Existing classroom space utilized by the computer information systems program has sufficient capacities to accommodate students participating in the PBC program. Students in the program will enroll in existing courses with students pursuing the BBA degree in computer information systems.
c. Indicate the need for new facilities, such as special buildings, laboratories, minor construction, remodeling, and fixed equipment. If special facilities and equipment will be needed, estimate cost and indicate proposed sources for financing.

Existing facilities are adequate for supporting this program.

7. ADMINISTRATION

a. In what department, division, school, college, or other designation will the proposed program be administered? Explain if the program is interdisciplinary and/or inter-departmental.

The program will be administered in the College of Business through the computer information systems area.

b. Indicate if the proposed program will affect the present administrative structure of the institution.

The implementation of the proposed program will not impact the present administrative structure of the University or College.

c. Describe any special departmental strengths and/or weaknesses and how the proposed program will affect them.

The Computer Information Systems program currently focuses on the most high demand areas of computer systems analysis, and network design and administration. The program has traditionally had a high placement rate of graduates to telecommunications, government, banking, and technology companies across the southern United States. Due to the demographics of our region and fewer direct enrollments from high school students, this program provides a way to meet the needs of non-traditional students.

8. ACCREDITATION

a. Is the program eligible to be accredited? If so, give the name(s) of the accrediting agency(ies), requirements for accreditation, and how the criteria will be achieved.

The BBA degree in Computer Information Systems is accredited as part of the College of Business Administration with the AACSB-International, and does not have separate accreditation. AACSB-International does not accredit post-baccalaureate or certificate programs.

b. Define the initial costs of accreditation and subsequent annual cost. N/A

9. RELATED FIELDS

a. Indicate subject matter fields at the institution which are related to, or will support, the proposed program.
In addition to upper division information systems, completion of an introductory course in computer programming is also required. This course is also available in the College of Business Administration.

b. Evaluate the supporting fields and indicate if they need improvement. If so, indicate the extent of improvement needed and cost.

Existing staff and resources are adequate to meet the needs of the PBC being proposed.

10. COSTS

a. Estimate costs of the proposed program for the first four years. Indicate any amounts to be absorbed out of current sources of revenue and needs for additional appropriations (if any). Indicate if federal or other sources of funds are available. Are there prospects for increased income from students recruited specifically to this program who otherwise would not have enrolled?

At this time, ULM only expects minimal additional costs to develop and implement this program. Students will enroll in existing ULM computer information systems courses with undergraduate degree-seeking students. Revenue generated from the tuition and fees of this proposal will be more than adequate to offset additional expenses for potential adjuncts or overload pay that may occur if program grows beyond initial projections. No additional appropriations are required.

<table>
<thead>
<tr>
<th>Year #</th>
<th>Students</th>
<th>Additional Cost</th>
<th>Reason for Additional Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>$0</td>
<td>Students will enroll in existing courses</td>
</tr>
<tr>
<td>2</td>
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<tr>
<td>3</td>
<td>10</td>
<td>$6500</td>
<td>Salary for 2 adjuncts, as needed</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>$6500</td>
<td>Salary for 2 adjuncts, as needed</td>
</tr>
</tbody>
</table>

The University will commit to funding the additional costs required to deliver the program through the additional revenue generated by the program.

b. Indicate Departmental Costs:

i. Show departmental operating expenditures for the last two completed fiscal years for departments involved in or related to the proposed program.

<table>
<thead>
<tr>
<th>Computer Information Systems</th>
<th>2010-2011</th>
<th>2011-2012</th>
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<tbody>
<tr>
<td>Personnel Services</td>
<td>$588,936</td>
<td>$591,436</td>
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<tr>
<td>Travel</td>
<td>$9600</td>
<td>$9600</td>
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<tr>
<td>OS/Supplies/Other</td>
<td>$2500</td>
<td>$2500</td>
</tr>
<tr>
<td>Total</td>
<td>$601,036</td>
<td>$603,536</td>
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</table>

ii. How will the proposed program affect the allocation of these funds?

No changes are anticipated.
c. **Indicate if additional funds for research will be needed to support the proposed program.**

No additional funds for research are anticipated for supporting this program.

d. **Provide estimates of additional cost on the attached form.**
SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM

Institution: University of Louisiana at Monroe  Date: October 18, 2012

Program/Unit: PBC in Computer Information Systems

FTE = Full Time Equivalent (use the institution’s standard definition and provide that definition.

<table>
<thead>
<tr>
<th></th>
<th>FIRST YEAR</th>
<th>SECOND YEAR</th>
<th>THIRD YEAR</th>
<th>FOURTH YEAR</th>
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<td></td>
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<td>Amount</td>
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<td>Faculty</td>
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<td>Support Personnel</td>
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<td>Fellowships and Scholarships</td>
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<td><strong>SUB-TOTAL</strong></td>
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<td><strong>0</strong></td>
<td><strong>$0</strong></td>
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| Facilitites              | $0         | AMOUNT      | $0         | AMOUNT      | $0         | AMOUNT      | $0         | AMOUNT      |
| Equipment                | $0         | AMOUNT      | $0         | AMOUNT      | $0         | AMOUNT      | $0         | AMOUNT      |
| Travel                   | $0         | AMOUNT      | $0         | AMOUNT      | $0         | AMOUNT      | $0         | AMOUNT      |
| Supplies                 | $0         | AMOUNT      | $0         | AMOUNT      | $0         | AMOUNT      | $0         | AMOUNT      |
| **SUB-TOTAL**            | **$0**     | **AMOUNT**  | **$0**     | **AMOUNT**  | **$0**     | **AMOUNT**  | **$0**     | **AMOUNT**  |
| **GRAND TOTAL**          | **$0**     | **$0**      | **$6,500** | **$6,500**  |

Amount & Percentage of Total Anticipated From:

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<th></th>
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<th>%</th>
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<tr>
<td>Private Grants/Contracts</td>
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<tr>
<td>Other (specify)</td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$0</td>
<td>NA</td>
<td>$0</td>
<td>NA</td>
<td>$6,500</td>
<td>100</td>
<td>$6,500</td>
<td>100</td>
</tr>
</tbody>
</table>

AcAf Policy 2.05 - Budget
BOARD OF SUPERVISORS FOR THE UNIVERSITY OF LOUISIANA SYSTEM

ACADEMIC AND STUDENT AFFAIRS COMMITTEE

December 3, 2012

Item E.6. **University of New Orleans’** request for approval of a Letter of Intent for a Doctor of Philosophy (Ph.D.) degree program in Advanced Materials and Nanoscience.

**EXECUTIVE SUMMARY**

University of New Orleans proposes to offer a Doctor of Philosophy degree program in Advanced Materials and Nanoscience. The program will be established to provide nationally recognized leadership in education, research and service in this growing interdisciplinary field. The proposed program will train science students and researchers for positions in industry, to prepare them for lifelong learning, and to provide them with appropriate background for entry into the research environment.

The primary objective of this program will be to provide doctoral-level education for students in the basic science and applications of advanced materials, emphasizing the recent advances in nanoscience and nanotechnology. This component of the program will include education in the theory of physical and chemical properties of solid materials. Also included will be training in techniques of characterization, analysis and evaluation of materials, with particular emphasis on applications of materials to society.

The proposed program is an excellent fit with UNO’s role, scope, and mission, as graduate study and research are integral components of its mission. Offering the proposed program will increase the University’s ability to achieve national competitiveness and to respond to specific state and regional needs. Additionally, this program will support UNO’s mission to produce a technologically advanced, diverse workforce for the State of Louisiana and surrounding region. Several studies by the National Research Council in recent years have pointed out the urgent need for increased scientific research and education in materials, particularly nanomaterials. The world demand for energy is projected to increase to 28 terawatts by 2050, almost double what it is today. These studies highlight the significance of materials in today’s world and consequently the need for a highly-trained workforce of professionals educated in the science of materials.

The course requirements for the Ph.D. program will draw from UNO’s existing courses as well as several proposed new courses. Ph.D. candidates will be required to complete a minimum of 60 semester credit hours of graduate coursework in an approved program beyond the bachelor’s degree, not including dissertation writing. The coursework will be made up of two major parts: a core of five courses taken by all students and two advanced courses tailored
for the student’s research. UNO’s interdisciplinary program will complement these programs well without duplication.

The projected enrollment in the program in year one is five, with a projected increase to 15 by year five. The number of expected graduates is two in year three and increases to four by year five. The program will be administered by the Advanced Materials Research Institute (AMRI) at UNO.

The University is well poised to offer this degree, in light of the history of UNO’s AMRI’s leadership in the area of Advanced Materials and Nanoscience. Since its creation in 1996, AMRI has been involved in high-quality materials research that encourages and promotes interaction among its members. The Institute maintains a budget for inviting nationally-renowned scientists, has an outstanding record of extramural research funding in advanced materials and nanoscience, and is well equipped with the modern tools for nanotechnology and materials characterization. Thus, existing facilities as well as current library holdings are sufficient to meet the needs of the proposed program. No new funds for faculty hiring will be required, nor will any other additional funds be required to support the proposed program.

The program provides for collaboration with other programs in the state, builds upon strengths of existing programs and faculty, and will promote economic development.

**RECOMMENDATION**

It is recommended that the following resolution be adopted:

**NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves University of New Orleans’ request of a Letter of Intent for a Doctor of Philosophy (Ph.D.) degree program in Advanced Materials and Nanoscience.**
# LETTER OF INTENT to DEVELOP a NEW ACADEMIC PROGRAM  
[Sept 2011]

**General Information**

<table>
<thead>
<tr>
<th>Campus: University of New Orleans</th>
<th>Program: Title, CIP, Degree/Certificate Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ph.D. in Advanced Materials and Nanoscience</td>
</tr>
<tr>
<td></td>
<td>CIP CODE 30.9999 – Multi/Interdisciplinary Studies</td>
</tr>
</tbody>
</table>

Institutional Contact Person & Access Info (if clarification is needed):
Charles J. O’Connor, 504-280-6846, coconnor@uno.edu

**Date:** 20 July 2012

## 1. Program Objectives and Content

Describe the program concept: purpose and objectives; basic structure and components/concentrations; etc.

### OVERVIEW

The Advanced Materials Research Institute (AMRI) in the College of Sciences at the University of New Orleans (UNO) proposes a new program which will offer students a Ph.D. degree in Advanced Materials and Nanoscience (CIP CODE 30.9999 Multi/Interdisciplinary Studies). The program will be established to provide nationally recognized leadership in education, research and service in this growing interdisciplinary field. The intent of the proposed program is to train science students and researchers for positions in industry, to prepare them for lifelong learning, and to provide them with appropriate background for entry into the research environment.

UNO’s program is focused on fundamental scientific research, education and applications of nanometer-scale functional materials related to a variety of fields including information technology, solar and thermal energy conversion technologies, and other materials at the forefront of science and technology. Central to the fabrication and study of these advanced materials is the related field of “Nanoscience,” which refers to the nanometer-scale size of the material constituents (one nanometer is one billionth of a meter). The focus of our program is advanced materials and composites built from atom and/or nanometer-scale constituents which are specifically designed to provide functionalities which cannot be achieved in existing materials.

As a result of the growing technological environment in New Orleans, there is strong and growing demand for advanced (Ph.D.) degrees in this rapidly-developing area and UNO is positioned to provide this educational program to compliment the successful research and development mission of AMRI. An advanced degree program in this technologically-relevant area will serve as an economic stimulus and act as an engine to drive the technological revitalization of New Orleans.

UNO/AMRI has a history of leadership in the area of Advanced Materials and Nanoscience. AMRI is a multidisciplinary institute established in 1996. It was created as a consortium for training, research, and technology transfer in advanced materials science. For 16 years, AMRI has been involved in high-quality materials research that encourages and promotes interaction among its members. The Institute maintains a budget for inviting nationally-renowned scientists to deliver seminars and holds quarterly reviews in the form of mini symposia. AMRI has an outstanding record of extramural research funding in advanced materials and nanoscience, and is extremely well equipped with the modern tools for nanotechnology and materials characterization.

There have recently been two state-wide, materials science-related research and education initiatives lead by AMRI/UNO. The first was the Louisiana EPSCoR Research Infrastructure Improvement Award (2001-2004) – Micro/Nano Technologies for Advanced Physical, Chemical and Biological Sensors Consortium. This was a three-year, $9M grant co-funded by the National Science Foundation and the Louisiana State Board of Regents. It involved researchers from AMRI/UNO; LSU Health Sciences Center; Tulane University; LA Tech University-Institute for Micromanufacturing; LSU Center for Advanced Microstructures and Devices (CAMD); Xavier University and Southern University. One of the more important outcomes of this initiative was the subsequent development of the DARPA-funded, multi-institutional, multi-disciplinary program, Bio-Magnetics Interfacing Concepts: A Microfluidic System using Magnetic Nanoparticles for Quantitative Detection of Biological Species. This was a $4.5M program, led by AMRI/UNO with LSU Health Sciences Center and the LSU Center for Advanced Microstructures and Devices.

Currently, AMRI/UNO is leading the state-wide Post-Katrina Support Fund Initiative (PKSFI) - A Center for Advanced Materials and Nanotechnology in AMRI at the University of New Orleans. This is a five-year, $5M project, involving
OBJECTIVES

Education. The primary objective of this program will be to provide graduate level education for students in the basic science and applications of advanced materials, emphasizing the recent advances in nanoscience and nanotechnology. This component of the program will include education in the theory of physical and chemical properties of solid materials. Also included will be training in the techniques of characterization, analysis and evaluation of materials, with particular emphasis on applications of materials to society. This will be accomplished by a cluster of core and specialized courses in Advanced Materials Science and Nanoscience offered by faculty in AMRI, Chemistry and Physics.

Research. The program will also provide graduate students with interdisciplinary, relevant Ph.D. dissertation projects. Research programs will focus on those areas most closely related to information technology (magnetic, electronic and optical materials); nanostructured materials; frequency agile materials; metamaterials; energy storage and conversion materials and spin transport materials and devices. Building on the current expertise and strengths in AMRI, we will emphasize research relating to nanometer-scale science and technology of these materials. Arguably, this will be one of the most relevant areas of training for high-tech jobs over the next 20 years.

CONTENT

The Doctor of Philosophy is a research degree leading largely to careers in teaching and research in academia, federal laboratories and industry. As their studies progress, the students develop an understanding at the highest level in his/her area of specialization that must lead to an original contribution to the field. Ph.D. studies are a demanding (and rewarding) experience that requires a strong interest in research in the selected area of specialization. The Ph.D. program has been designed to optimize the fundamental education of the student in the science of advanced materials and at the same time provide the required advanced specialization. A summary of the requirements are given below in Table 1.

<table>
<thead>
<tr>
<th>REQUIREMENT</th>
<th>CREDIT HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core curriculum (5 core courses)</td>
<td>15</td>
</tr>
<tr>
<td>Electives (2 elective courses)</td>
<td>6</td>
</tr>
<tr>
<td>Seminar</td>
<td>6</td>
</tr>
<tr>
<td>Workshops and Research reading</td>
<td>3</td>
</tr>
<tr>
<td>Formal research</td>
<td>30</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>

Course Requirements

The course requirements draw from existing courses at UNO as well as several proposed new courses. Ph.D. candidates must complete a minimum of 60 semester credit hours of graduate course work in an approved program beyond the bachelor’s degree, not including dissertation writing. The coursework is made up of two major parts: a core of five courses taken by all students and a group of two advanced courses tailored for the student’s research (approved by the student’s Ph.D. committee). If a student’s background is insufficient for a 6000-level graduate course, the student must prepare by attending an appropriate 4000-level graduate or undergraduate course or through independent studies.

Every student must take the following five core courses.

1. Introduction to Advanced Materials
2. Thermodynamics of Materials
3. Characterization of Materials
4. Synthesis and Processing of Materials
5. Modeling and Simulation of Materials

A student will also take six hours of elective courses. The group of two additional courses will be selected by the student and his/her advisor as the best advanced preparation for research in the area of the Dissertation. These courses will be chosen from list in Table 2.

<table>
<thead>
<tr>
<th>Table 2. List of possible elective courses. * indicates new course.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCI 6xxx Magnetic, Electronic and Optical Properties of Materials*</td>
</tr>
<tr>
<td>SCI 6xxx High-Frequency Electronics*</td>
</tr>
<tr>
<td>SCI 6xxx Crystallography*</td>
</tr>
<tr>
<td>SCI 6xxx Physics of Low-Dimensional Semiconductor Materials*</td>
</tr>
<tr>
<td>SCI 6xxx Materials Science of Thin Films*</td>
</tr>
<tr>
<td>CHEM 6496-3 Electron Microscopy of Materials</td>
</tr>
<tr>
<td>CHEM 6496-4 Advanced Electron Microscopy</td>
</tr>
<tr>
<td>CHEM 6496-1 Nanomaterials Synthesis</td>
</tr>
<tr>
<td>PHYS 6901 Condensed Matter and Materials Physics</td>
</tr>
<tr>
<td>PHYS 6194-3 Magnetic Materials and Applications</td>
</tr>
</tbody>
</table>

2. Need

Outline how this program is deemed essential for the wellbeing of the state, region, or academy (e.g., accreditation, contribution to economic development; related to current or evolving needs within state or region). Cite data to support need: employment projections; supply/demand data appropriate to the discipline and degree level, etc.

The proposed program is unique in Louisiana. Louisiana Tech has two related programs: an undergraduate program Nanosystems Engineering and a new Ph.D. program in Molecular Science and Nanotechnology. UNO’s proposed interdisciplinary Ph.D. program in Advanced Materials compliments these programs, but does not duplicate. While Louisiana Tech’s program is focused on molecular science and technology, UNO’s program will focus on the basic science of materials and fundamental chemical and physical interactions on the nanometer scale. The emphasis of LA Tech’s program is on biology or biomedical related research and education: 38% of the program’s faculty is from Biological Science or Biomedical Engineering and 73% of the faculty have research concentrations in biology, molecular biology, biomedical engineering, drug delivery, or molecular dynamics. The core courses for LA Tech’s program cover topics in molecular biology, biotechnology, and nanotechnology. In contrast, UNO’s program is focused on advanced materials which would have applications in information technology, energy conversion and storage, and chemical sensors. Our program’s core courses cover topics in material synthesis, thermodynamics, material characterization (structural and physical properties of materials) and material simulation. We have also contacted Dr. Bala “Ramu” Ramachandran, Hazel Stewart Garner Professor of Chemistry and Associate Dean for Research in the College of Engineering & Science at Louisiana Tech University. He is supportive of the Ph.D. in Advanced Materials and Nanoscience.

No such doctoral program has ever been offered in the state of Louisiana. Table 3 lists similar programs in neighboring states. Historically, materials science programs and departments originated primarily in those areas with a strong science- and technology-oriented industry base, namely the east and west coasts of the US. Strong programs are now as close as Atlanta (Georgia Tech) and Austin, Texas (UT). Even closer, the University of Southern Mississippi has established a School of Polymers and High-Performance Materials built on its touted Polymer Science and Engineering research program. There are strong programs in the Research Triangle area of North Carolina: NCSU in Raleigh has a nationally-recognized Materials Science and Engineering Department and UNC-Chapel Hill offers interdisciplinary graduate degrees through its curriculum in Applied and Materials Science. The University of Alabama system has won two prestigious Materials Research Science & Engineering Center (MRSEC) awards from NSF. Although they do not (as yet) have a Materials Science department, the University of
Arkansas together with the University of Oklahoma have also received a MRSEC award and have established the Arkansas-Oklahoma Center for Science in Physics and Nanostructures (CSPIN). Although they have no degree program yet, the University of Arkansas has an interdisciplinary materials science research center, the Institute for Nanoscience and Engineering, housed in a new 75,000 sq. ft 3-story building opened in 2011. The University of New Orleans and AMRI are now ideally situated to establish and maintain a viable, competitive graduate program in this expanding area.

Table 3. Related programs in neighboring states.

<table>
<thead>
<tr>
<th>INSTITUTION</th>
<th>STATE</th>
<th>PROGRAM</th>
<th>DEGREES</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice Univ.</td>
<td>TX</td>
<td>Mechanical Engineering and Materials Science</td>
<td>BS, MS, PhD</td>
<td>Emphasis on engineering and structural materials</td>
</tr>
<tr>
<td>U. Texas, Austin</td>
<td>TX</td>
<td>Materials Science and Engineering (Texas Materials Institute) <a href="http://www.tmi.utexas.edu">www.tmi.utexas.edu</a></td>
<td>MS, PhD</td>
<td>Interdisciplinary degree program</td>
</tr>
<tr>
<td>U. Texas, Arlington</td>
<td>TX</td>
<td>Materials Science and Engineering mse.usa.edu</td>
<td>MS, PhD</td>
<td></td>
</tr>
<tr>
<td>U. North Texas</td>
<td>TX</td>
<td>Materials Science and Engineering <a href="http://www.mts.c.unt.edu">www.mts.c.unt.edu</a></td>
<td>MS, PhD</td>
<td></td>
</tr>
<tr>
<td>U. Texas, Dallas</td>
<td>TX</td>
<td>Materials Science and Engineering <a href="http://www.mse.udallas.edu">www.mse.udallas.edu</a></td>
<td>MS, PhD</td>
<td>Interdisciplinary degree program</td>
</tr>
<tr>
<td>U. Mississippi</td>
<td>MS</td>
<td>Materials Science and Engineering <a href="http://www.olemiss.edu/depts/matsci">www.olemiss.edu/depts/matsci</a></td>
<td>MS, PhD</td>
<td>Interdisciplinary degree program</td>
</tr>
<tr>
<td>U. Southern Mississippi</td>
<td>MS</td>
<td>College of Polymers and High Performance Materials <a href="http://www.usm.edu/polymer">www.usm.edu/polymer</a></td>
<td>BS, PhD</td>
<td></td>
</tr>
<tr>
<td>U. Alabama (Tuscaloosa, Huntsville, Birmingham)</td>
<td>AL</td>
<td>Materials Science and Engineering bama.ua.edu/“uasmatls</td>
<td>MS, PhD</td>
<td>Tricampus interdisciplinary degree program</td>
</tr>
</tbody>
</table>

In his keynote address at the 2000 National Materials Advisory Board Forum, Sen. Pete Domenici succinctly stated, “Materials science underpins every product and process on which our modern society depends.” Later, that same report concludes “[M]aterials define the sophistication and wealth of nations. Materials create wealth, improve our standard of living, and are key to meeting society’s needs, from national security and communications to health and housing.” These words still apply today.

In the workshop referenced above, two broad classifications of materials were defined: “Structural Materials” and “Functional Materials.” Our proposed program focuses on the latter category, “Functional Materials.” This includes the electronic, magnetic and optical materials which are the fundamental in enabling advanced technologies like communications, information technologies, commercial and military sensors, novel energy conversion technologies and biomedical applications.

The role of these materials in the evolution of technology cannot be overstated. Simply put, today’s technologies are based directly on improvements in materials science. Consider the transistor. Scientists at Bell Laboratories were able to understand and eventually control the properties of silicon and its oxide to produce the transistor which is, of course, the base technology of the Information Age. Transistors are the fundamental component of the integrated circuit (“computer chip”). Today, these chips are found not only in computers, but also automobiles, cell phones, microwave ovens, refrigerators, medical implants, Christmas tree lights and greeting cards. Consider also the phenomenal advances in magnetic material research and the subsequent improvement in

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magnetic data storage, particularly computer hard drives. Amazingly, magnetic storage is now cheaper than paper storage.

Several studies by the National Research Council in the past few years have pointed out the urgent need for increased scientific research and education in materials, particularly nanomaterials. The world demand for energy is projected to increase to 28 TW (terawatts) by 2050, almost double what it is today. As the finite supply of fossil-fuel is being consumed at an ever increasing rate, the search for alternative energy sources and more efficient energy storage materials is critical. Engineered nanomaterials are key enablers in the development of next-generation energy conversion and storage technologies.

These studies highlight the significance of materials in today’s world and consequently the need for a highly-trained work force of professionals educated in the science of materials. In part, the lack of an educated work force skilled in interdisciplinary methods requires potential employers to look elsewhere. This program will directly address that need by providing scientifically skilled graduates and fostering a community research atmosphere to stimulate development. This atmosphere is crucial in attracting and retaining high-technology industry, as has been seen across the country in other technology-intensive centers of growth.

Ample evidence suggests that the proposed program will capture the interest of high-tech industry. For example, in addition to Federal grants, AMRI at UNO is supported through collaborations with scientists at the Naval Research Laboratory, Lockheed Martin Missiles and Space, IBM Almaden Research Center, IBM T.J. Watson Research Center, Nanohmics, Inc., Superconducting Technologies, Seagate Technology, Paratek Microwave, Inc., Nonvolatile Electronics, Inc., g.c.r. & associates, inc., Neptune Sciences, Inc., Promag, Ltd., Amerigon, Inc., Agiltron, Inc., and United Technologies Research Center.

3. Relevance
Explain why this program is an institutional priority at this time. How will it (a) further the mission of the institution and (b) increase the educational attainment of the state’s adult population or foster innovation through research.

At UNO, the Ph.D. program would provide training in the active research area of applications of advanced materials and nanomaterials, and explore applications in several high-technology areas including information technology and energy storage and conversion. As part of a larger collaborative degree program, a broader training which incorporates the complementary faculty research and education at the other universities is available. The degree program will become the educational component of the Advanced Materials Research Institute, which has had made a significant contribution to UNO in its role, scope and mission as a major statewide research university. Further, this program will enhance UNO’s mission to produce a technologically advanced, diverse workforce for the State of Louisiana and surrounding region.

The mission of the university and the University Strategic Plan 2011-2014 identify Centers of Excellence which provide “educational and workforce development opportunities to a highly diverse student population.” The Advanced Materials Research Institute is identified in the strategic plan as a Center of Excellence. The mission statement goes on to specify doctoral programs that “focus on fields of study in which UNO has the ability to achieve national competitiveness” and defines “the university’s strategic collaborations with business and industry [that] help drive the economic development of the State of Louisiana in areas such as Nanotechnology...”. Clearly AMRI has achieved national competitiveness and is a key component of the mission of the university.

The proposed Ph.D. program supports the Board of Regents’ Master Plan for Public Postsecondary Education in Louisiana. Fostering Innovation through Research in Science and Technology (FIRST) is the statewide plan for organizing and directing the research component of higher education in Louisiana. The Materials Science Ph.D. promotes multidisciplinary and multi-institutional collaborative research efforts. The multidisciplinary degree builds on and expands the foundational disciplines of Physics, Chemistry, Engineering, Math, and Computer Science targeted by the FIRST plan. This Ph.D. program will directly impact the Materials and Chemicals initiative.

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which is identified as a high-growth target industry in the FIRST Louisiana Science and Technology Plan. The close ties to existing materials science research activities at AMRI and CAMD will serve to further advance technology transfer and research commercialization opportunities. AMRI and its success in connecting fundamental science to economic development in an area defined in Louisiana's Blue Ocean Strategy is one of the examples used in presentation of the FIRST plan at the state level.

4. Students
Summarize student interest/demand for the proposed program.

Our program is geared to accommodate students with a wide range of backgrounds in science and engineering. Our strategy is to recruit students primarily from local and regional four-year universities. Of course, we will intensively recruit from Xavier, Dillard and Loyola. Dillard University is developing a materials-based physics program that will provide minority student in this important STEM field. We will also recruit from colleges and universities in the southeast. We expect to enroll a few students from our own programs which have terminal master’s degrees, like the M.S. in Physics and Applied Physics. Our program will be vigorously advertised on the web and in Graduate School guides, like Peterson's Graduate Schools in the U.S.

Currently, there are 19 M.S. and Ph.D. students working for AMRI faculty on AMRI projects. We typically get about 40 inquiries a year concerning graduate studies in advanced materials and nanoscience at UNO. The applicants have learned of the intensive research efforts from AMRI’s web page, the web pages of individual faculty members, scientific conferences or scientific literature. The enrollment and graduate estimates in Table 4 are based on the number of applications/inquiries and the past history of graduate students within AMRI.

<table>
<thead>
<tr>
<th>Table 4. Enrollment and graduate estimates for the first five years of the program.</th>
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</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Enrollment</td>
</tr>
<tr>
<td>Graduates</td>
</tr>
</tbody>
</table>

5. Cost
Estimate costs for the projected program for the first five years. Indicate amounts to be adsorbed out of current sources of revenue and needs for additional appropriations (if any). Commit to provide adequate funding to initiate and sustain the program.

The Advanced Materials and Nanoscience Ph.D. program will be administered by the Advanced Materials Research Institute at UNO. The core funding of the institute is obtained from funds given to the University of New Orleans in 2001 under the Information Technology section of Governor Foster’s 2020 initiative. A central component of the original IT proposal was to develop an academic program with the funding. The personnel and faculty recruited under this initiative will manage this academic program in addition to maintaining the research infrastructure of AMRI. The yearly IT budget currently covers four faculty members and two management staff. Graduate students will be supported by research grants in AMRI. In the past five years AMRI consistently supported an average of 21 students/year with graduate student stipends and tuition. No additional appropriations are necessary.

CERTIFICATION:

______________________________  ________________________
Chief Academic Officer  Date

______________________________  ________________________
Chancellor/President  Date

______________________________  ________________________
Management Board  Date

EXECUTIVE SUMMARY

University of New Orleans proposes to offer a Doctor of Philosophy degree program in Computer and Information Sciences. The proposed program is designed to offer the advanced training necessary for academic careers, as well as for research-intensive positions, in the Information Technology (IT) and Biotechnology industries.

In addition to preparing students for demanding, research and development jobs, the program seeks to attract highly qualified researchers and developers to the Greater New Orleans area, enhance the available pool of IT experts, and draw startups to the UNO Research Technology Park and the New Orleans BioInnovation Center. As well, the program seeks to enhance the research competitiveness of the University and to increase the amount of research funding in Computer Science. The proposed program is an excellent fit with UNO’s role, scope, and mission as graduate study and research are integral components of its mission. The program will also build on existing strengths. UNO has the strongest Information Assurance (IA) program in the region and is designated as a National Center of Academic Excellence in Information Assurance Education and Research.

The Ph.D. in Computer and Information Science will require a minimum of 72 semester credit hours of graduate course work beyond a Bachelor’s degree. Although the University anticipates that most candidates will focus their research on Information Assurance and Bioinformatics, the department also offers a high level of expertise in distributed/cloud systems, geospatial information systems, and software engineering. Program requirements will include four core courses in the areas of operating systems, programming languages, algorithms and theory of computation, and software engineering and databases, as well as three courses from the student’s area of concentration. Since course requirements for the program will draw from existing courses, it is not anticipated that the development of new courses will be required.

The proposed doctoral program will facilitate immediate growth in a sector of light industry coveted by the Greater New Orleans area. In addition, Information Technology and Biotechnology have been recognized by Louisiana as two of the key areas that can help diversify the state’s economic base. The Biotechnology area in the Greater New Orleans area is experiencing significant growth. Over the last ten years, UNO has established a strong and
successful working relationship with the Research Institute at Children’s Hospital, New Orleans, centered on joint faculty positions, collaborative research and joint grant development.

Statewide, there are two Ph.D. programs in Computer Science (Louisiana State University – Baton Rouge and University of Louisiana at Lafayette) and an interdisciplinary Ph.D. program in Computational Analysis and Modeling at Louisiana Tech University. UNO’s proposed Ph.D. program is largely complementary in that it focuses on Bioinformatics. Moreover, given the current and expected growth in demand for highly trained researchers and professionals in information assurance, the existence of two centers of scholarly excellence in that field would be beneficial for Louisiana as it would attract large cyber security companies.

The University expects that, within five years of instituting the new program, enrollment will grow to approximately 30, and that the department will be graduating four students annually. In addition to attracting graduates from UNO’s Computer Science Department, the program is expected to attract students from Southeastern Louisiana University’s Department of Computer Science and Industrial Technology, University of Southern Mississippi’s School of Computing and other nearby institutions.

Existing resources will be sufficient to implement the new program. The cost of program administration, clerical support and supplies will be absorbed by the Computer Sciences department, with no additional funds required. The University anticipates that the level of grant funding will also increase as a result of the new Ph.D. program, leading to the creation of more research assistantships.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves University of New Orleans’ request for approval of a Letter of Intent for a Ph.D. degree program in Computer and Information Sciences.
LETTER OF INTENT to DEVELOP a NEW ACADEMIC PROGRAM [Sept 2011]

General Information

<table>
<thead>
<tr>
<th>Campus:</th>
<th>Program: Title, CIP, Degree/Certificate Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of New Orleans</td>
<td>Computer and Information Sciences, 11.0101, Ph.D.</td>
</tr>
</tbody>
</table>

Institutional Contact Person & Access Info (if clarification is needed):

Steven G. Johnson, Dean of the College of Sciences; 504-280-6346; sjohnso@uno.edu

1. Program Objectives and Content

Describe the program concept: purpose and objectives; basic structure and components/concentrations; etc.

Objectives

The goal of the program is to provide a doctoral study and degree program in Computer Science at the University of New Orleans. The program will offer the advanced training necessary for academic careers, as well as research-intensive positions in the Information Technology (IT) and Biotechnology industries.

Core areas of departmental research prominence include: Bioinformatics and Information Assurance (IA). Each of the two core research strengths has achieved distinction and is expected to serve as a solid foundation on which to build the IT and Biotechnology research and graduate training infrastructure in the Greater New Orleans (GNO) area. The proposed doctoral program offers immediate growth in a sector of light industry coveted by the GNO area. In particular, Bioinformatics resides at the crossroads of Biotechnology and IT, two of the core areas targeted for growth by the State of Louisiana. Additionally, there is strong demand for highly skilled IA personnel throughout the IT sector, to meet the significant cyber security challenges faced by companies of all sizes.

Specifically, the proposed program will seek the following main objectives:

- Prepare qualified individuals from the GNO area for demanding, research and development jobs in the IT industry, with a particular emphasis on UNO’s areas of strength.
- Attract highly qualified researchers and developers from all around the world to the GNO area to work on research-intensive projects in Bioinformatics and IA.
- Enhance the available pool of IT experts in the GNO and, thereby, help attract high value IT businesses to the area.
- Attract startups to the UNO Research Technology Park and the New Orleans BioInnovation Center.
- Enhance the research competitiveness of the University of New Orleans and increase the amount of research funding in Computer Science.
- Support the development of new research methods and tools that enhance the well being of the people of the State of Louisiana, and help improve the quality of education in the area.

The Department of Computer Science has been an active participant in the DENAS (Doctorate in Engineering and Applied Science) doctoral program at UNO. Over the last five years, the department has had, on average, 14 enrolled Ph.D. students and has graduated two annually. Our graduates have been able to obtain research-oriented positions in places like Dow Chemical, Intel, the Naval Research laboratory (NRL) and Naval Meteorology and Oceanography Command (NMOC) at Stennis Space Center.

Overall, participation in the DENAS doctoral program has been a valuable learning experience for the department in administering the program, and securing scholarships for doctoral students. Similarly, individual faculty members have gained experience mentoring doctoral students, and have developed sustainable research programs that can provide funding for Ph.D. students.

Despite the positive results for the department, DENAS’s original design as an inter-disciplinary program across two colleges and eight different departments, is becoming a practical impediment to further growth in our Ph.D. program. Over the last decade, the department has invested its main efforts and resources in developing two areas of excellence—information assurance and bioinformatics—and has achieved a national level of competitiveness, as evidenced by multiple grants from NSF, NIH, DoD, and other federal agencies. Thus, the strengths and focus of the department in developing specific areas of expertise is at cross-purpose with the vision of broad inter-disciplinary integration espoused by DENAS; such dichotomy brings tangible obstacles to our program.
One of the main drawbacks of DENAS is that it is not a typical Ph.D. program, which makes recruiting high quality candidates outside of the GNO area very challenging. Despite strong programs in IA and Bioinformatics, and competitive aid packages, most potential students have a strong preference for a classical Computer Science Doctoral program. Such inclination is understandable as academic and research oriented industry positions target specialized skills and qualifications; the DENAS approach is rare and atypical in this respect.

Another drawback of DENAS is that it forces students to take on additional courses that have little to do with their area of specialization. While the original intent was to provide broader skill set, the reality is that it diverts their efforts from the main research focus and makes them spend extra time in the program. Over the course of the program, we have not observed practical benefits that would justify this additional effort, and feedback from our alumni agrees with this observation.

On a longer-term basis, a proper Computer Science Ph.D. program is crucial to recruiting and retaining high-quality faculty that can sustain competitive research agendas. At the time of DENAS’ establishment, the department was in the beginning of its transition to a more research-intensive focus. Today, with the transition effectively complete, it is vitally important that the department has all the necessary tools to sustain it. Attracting more and better doctoral students is a keystone of all such efforts.

In summary, concentrations based on a classical doctoral program in Computer Science are entirely sufficient to market our specific, current areas of excellence.

**Content**

The Doctor of Philosophy in Computer Science would require a minimum of 72 semester credit hours of graduate course work beyond a Bachelor’s degree. Table 1 outlines the basic requirements, which are split among core courses, electives, and dissertation research. We expect most candidates to focus their research in Information Assurance and Bioinformatics. However, the department also offers high level of expertise in distributed/cloud systems, geospatial information system and software engineering.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core curriculum (5 core courses)</td>
<td>15</td>
</tr>
<tr>
<td>Electives</td>
<td>24</td>
</tr>
<tr>
<td>Seminar</td>
<td>3</td>
</tr>
<tr>
<td>Formal research (dissertation)</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>72</strong></td>
</tr>
</tbody>
</table>

The chosen core courses must contain at least one course from each of the following groups:

- Operating Systems: CSCI 4401G, CSCI 6450, CSCI 6401
- Programming Languages: CSCI 4501G, CSCI 6501
- Algorithms and Theory of Computation: CSCI 6101, CSCI 6110, CSCI 6120

At least three electives must be chosen from the student’s area of concentration. Additionally, at least one course must be chosen from three areas among the four areas listed below.

- Information Assurance: CSCI 4130G, CSCI 4402G, CSCI 4621G, CSCI 4623G, CSCI 6130, CSCI 6621
- Database and Distributed Systems: CSCI 4125G, CSCI 4208G, CSCI 4350G, CSCI 6230, CSCI 6350, CSCI 6401

At most four courses can be at the 4000G level. The remaining courses must be at the 6000-level. For students entering the program with a Master’s degree, up to 24 semester hour credits of Computer Science courses
obtained in a Master’s degree program can be counted toward the students course work in this program.

The planned Computer Science PhD program is not anticipated to require any new courses. However, it is worth noting that a number of new 6000-level courses (Advanced Reverse Engineering, Network Penetration Testing, and Storage Networking) have already been taught as special topic courses and are currently in the process of being formally added to the curriculum.

2. Need

Outline how this program is deemed essential for the wellbeing of the state, region, or academy (e.g., accreditation, contribution to economic development; related to current or evolving needs within state or region). Cite data to support need: employment projections; supply/ demand data appropriate to the discipline and degree level, etc.

In recent years, the State of Louisiana has been engaged in a strong economic diversification program. Information Technology (IT) and Biotechnology have been recognized by the State of Louisiana as two of the key areas that can help diversify our economic base. The Greater New Orleans (GNO) area has had some initial success in attracting leading international IT companies, including General Electric (with 300 high paying jobs), Gameloft, and Globalstar.

The IT-oriented Research and Technology Park (RTP) at UNO is one of the successful initiatives of this economic diversification process. In addition to serving as an incubator for startups, it also hosts larger, more established IT companies, such as Geocent and eVentures, as well as the anchor tenant—the Space & Naval Warfare Command (SPAWAR), one of US Navy’s large IT facilities. Thus, the RTP serves as a natural hub for collaboration among the Navy, UNO, and local companies, and the success of this process is evidenced by a long list of completed cooperative research projects.

The Biotechnology area in the GNO area is also experiencing significant growth thanks to the New Orleans biomedical district with its new $47M BioInnovation Center. Over the last ten year, UNO has established a strong and successful working relationship with the Research Institute at Children’s Hospital, New Orleans, centered on joint faculty positions, collaborative research and joint grant development.

To sustain the momentum over the long term, the GNO area needs to continue to enhance its educational profile, especially by producing graduates that can perform research and advanced product development. The Computer Science Department at UNO, with an enrollment of about 300 undergraduate and graduate students, is the natural focal point for most computer science academic research and instruction in the GNO area. In the post-Katrina environment, most institutions in the area have cut back, or completely eliminated (Tulane University, Loyola University) their Computer Science programs. In contrast, UNO maintains the only graduate Computer Science program in the area and has made a commitment to expand it by hiring new faculty, supporting students, and investing in compute facilities.

The department envisions developing and implementing a new PhD program in Computer Science, which will build on prior experience in the department with the DENAS program at UNO and will seek to expend upon existing areas of prominence in Information Assurance and Bioinformatics.

Statewide, there are two Ph.D. programs in Computer Science—LSU Baton Rouge and UL Lafayette—and an Interdisciplinary Ph.D. Program in Computational Analysis and Modeling at Louisiana Tech University. The main research areas offered by UNO are largely complementary: none of the existing programs focuses on Bioinformatics and only ULL features Computer Security as a major area of research. Even within the area of cyber security, the work at UNO and ULL focuses on different problem areas. Given the current and expected growth in demand for highly trained researchers and professionals in information assurance, having two centers of scholarly excellence would be of benefit for the State as it would allow large cyber security companies to establish presence in Louisiana.
3. Relevance

Explain why this program is an institutional priority at this time. How will it (a) further the mission of the institution and (b) increase the educational attainment of the state’s adult population or foster innovation through research.

The proposed program is entirely in sync with the main mission of the University of New Orleans to be the leading urban research university of Louisiana. The Computer Science Department is hosting two areas of excellence as per the University’s Strategic Plan—Information Assurance and Bioinformatics; each of these has already demonstrated significant achievements.

The University of New Orleans has the strongest Information Assurance (IA) program in the region and is designated as a National Center of Academic Excellence (CAE) in Information Assurance Education (IAE) and Research (CAE-R) by the National Security Agency (NSA) and the Department of Homeland Security (DHS)—the only university holding these designations in the State of Louisiana. Only 54 universities nationwide carry this double designation (CAE/CAE-R) and UNO is the only one in Louisiana. Such recognition opens up new scholarship opportunities for students and provides access to new lines funding available only to CAE-R institutions.

UNO’s Computer Science department was the first academic unit in the state (and indeed, the entire U.S.) to offer comprehensive academic courses in digital forensics, reverse engineering, and network penetration testing. Our IA students are establishing a reputation for excellence, evidenced by our 2008 Collegiate Cyber Defense Team placing a close second in its first appearance at the Southwestern Collegiate Cyber Defense Competition, immediately behind the defending national champions of this competition. The department is hosting the board-approved Greater New Orleans Center for Information Assurance (GNOCIA), which provides students with a rich environment for hands-on learning, experimentation, and research. Over the last several years, GNOCIA faculty have been successful in securing significant Federal R & D funding (close to $2M over the last 2.5 years from NSF and DoD) and have developed an advanced IA curriculum, which enables graduates to place at advanced cyber security positions on a national level.

The Bioinformatics research group consists of faculty with diverse interests including high-throughput sequencing, genomics, microbiome analysis, biological network analysis, and computational structural biology. Bioinformatics faculty members collaborate very closely with researchers at UNO’s departments of Biology and Chemistry and at other institutions in the GNO area including Children’s Hospital of New Orleans, LSU Health Sciences and Tulane School of Medicine. They have been very successful in obtaining external funding at both the State and Federal levels with Board of Regents and NIH grants (close to $1.5M secured from NIH). Because of the lack of a doctoral program in computer science, the Bioinformatics group has had limited success in attracting and training high caliber Ph.D. students. Nevertheless, a number of our Bioinformatics doctoral students have won University-sponsored full scholarships to pursue their research. Graduates of the program have gone on to prestigious positions in academia and industry such as the Josephine Bay Paul Center at the Marine Biological Laboratory and cutting edge genetic testing companies that advise prospective parents of potential congenital disease risks. This relatively -"modest"- success in attracting high caliber doctoral student is due to the lack of a doctoral program in computer science.

A doctoral program in Computer Science is the next logical step in the continued growth of the department as a center of excellence; it will greatly enhance the department’s ability to attract and retain high quality faculty members and graduate students, thereby increasing research output and educational attainment. It will further enhance faculty’s ability to successfully compete on a national level and will allow them to take on bigger projects.

4. Students

Summarize student interest/demand for the proposed program.

The new doctoral program in Computer Science will attract departmental undergraduate (around 230) and Master’s students (currently around 45) who are already offered IA and Bioinformatics concentrations at the BS and MS levels. Currently, over 57% of Computer Science Doctoral students enrolled in the DENAS program are
graduates of UNO’s Computer Science Department. The new program will also attract doctoral students from the GNO area and nearby states as is currently the case with the current DENAS. More specifically, Southeastern University’s Department of Computer Science and Industrial Technology (over 900 enrolled), and University of Southern Mississippi’s School of Computing (over 500 majors) will be targeted for recruitment. Other nearby smaller institutions, Xavier’s Computer Science Department (40 majors) and Southern University of New Orleans’ Management and Information Systems Department (around 180 majors), will provide an additional source of doctoral students. Given our Department’s strong research relationship with nearby Stennis Space Center (SSC), it is also expected that more doctoral students from SSC would be attracted to the proposed program (currently only 21% of our DENAS doctoral students are from SSC). We also expect the new program to be significantly more attractive to international doctoral students; currently, only 21% of departmental doctoral students are international.

We expect that, within five years of instituting the new program, the number of enrolled Ph.D. students will double to approximately 30, and that the department will be graduating four students annually.

5. Cost

Estimate costs for the projected program for the first five years. Indicate amounts to be absorbed out of current sources of revenue and needs for additional appropriations (if any). Commit to provide adequate funding to initiate and sustain the program.

The goals of the proposed program will be accomplished by realigning existing resources and will not incur any net new costs. The program will be administered by the department’s Graduate Coordinator who will be assisted by the department’s Graduate Committee. They will be in charge of branding and advertising the planned program, plan course offerings and admission of doctoral students. The cost of program administration, clerical work, supplies and offices allocation will be absorbed by the Computer Science department.

The department intends to continue its current practice of providing financial support to all its full-time doctoral students. Approximately, one-third of the expected 30 enrolled students will be funded through teaching/service graduate assistantships. Another third will be funded via graduate school Scholarships/Fellowships, UNO’s Office of Research and Sponsored Program (ORSP) 1-for-3 doctoral awards program, Board of Regents Superior Graduate Fellow program, National Science Foundation Fellowships and NSA/DHS IA Fellowship/Scholarship program. The remaining one third of enrolled students will be funded via research grants/contracts on an ongoing basis. We anticipate that the level of grant funding will also increase with the new Ph.D. program leading to more research assistantships.

CERTIFICATION:

__________________________  ___________________
Chief Academic Officer  Date

__________________________  ___________________
Chancellor/President  Date

__________________________  ___________________
Management Board  Date
Item E.8. University of Louisiana System’s proposed revisions to Board Rule Chapter II. Students. Section I. Admission.

EXECUTIVE SUMMARY

Board Rules provide that each institution develop and establish the criteria for admission to the institution. Additionally, the Rules provide basic guidelines and parameters for the admission of students. These proposed changes will bring the admission requirements for non-resident undergraduate students in line with the Board of Regents Minimum Admission Standards which became effective Fall 2012.

RECOMMENDATION

It is recommended that the following resolution be adopted:

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors for the University of Louisiana System hereby approves University of Louisiana System’s proposed revisions to Board Rule Chapter II. Students. Section I. Admission.
CHAPTER II
STUDENTS

SECTION I. ADMISSION

A. Criteria for Admission. In recognition of the diversity of higher education in the Board of Supervisors for the University of Louisiana System, each institution will develop its own criteria for admission, consistent with Board of Regents standards, including early admission and concurrent enrollment with the approval of the Board of Supervisors, suitable to its stated purpose or mission consonant with the needs of the people whom it serves. Furthermore, each institution shall publish its criteria for admission in all appropriate documents. Particular degree programs, departments, colleges, or divisions within an institution may have requirements in addition to those for the institution as a whole. The institution shall not discriminate on the basis of race, color, creed, sex, age, disability, marital status, veteran status, or national origin. Institutions must consider minority enrollment in development of admission procedures and recruitment activities. Admission criteria for the institution shall be approved by the Board of Supervisors. All admission standards are set by the Board.

B. Denial of Admission. System institutions have the right to deny admission to an applicant who otherwise meets the admission standards. In instances which would be detrimental to the applicant or which would interfere with the capacity of other students to benefit from the educational experience. This is meant to be used in rare cases to protect individuals and institutions. General policy shall be approved by the Board.

C. Admission. In order to be considered for regular admission a student making application shall supply a high school transcript from an accredited high school and the record of the American College Test (ACT), or the acceptable equivalents, in order to be considered for regular admission. Students transferring from a postsecondary institution shall provide transcripts from that institution. In the event that these cannot be supplied in time for admission, the student may be admitted provisionally pending receipt of the required information. Part-time non-degree seeking students may be enrolled without meeting these criteria. (See PPM)

D. Draft Registration, Prerequisite to Enrollment; Exemptions. In accordance with the
requirements of R.S. 17:3151 as amended (Acts 1985, No. 185, Section 1; amended by Acts 1987, No. 214, Section 1; Acts 1999, No. 345, Section 1), each institution within the University of Louisiana System shall implement the following requirements for admission:

1. Except as provided in parts 2 and 3 below, no person who is required to register for the federal draft under the federal Military Service Act Selective Service System shall be eligible to enroll in the institution until such person has registered for such draft and provides evidence of having done so.

2. A veteran of the armed forces of the United States may submit a copy of his discharge papers or his discharge certificate as evidence of compliance with this policy.

3. A person who has not registered for the federal draft Selective Service System, as specified in part 1 above, shall be eligible to enroll in the institution if both of the following occur:
   a. The requirement for the person to register has terminated or become inapplicable to the person.
   b. The person makes a showing satisfactory to the institution that the failure to register was not a knowing and willful failure to register. (Addition approved 9/26/97)

E. Admission of Non-Resident Undergraduate Students.

First time freshmen and/or transfer students who have earned post-secondary education credit hours who are residents of another state and applying for admission to any institution within the System shall be required, at a minimum, to meet the Board of Regents Minimum Admission Standards.

As a requirement for admission of first-time freshmen as well students transferring from(entering undergraduate students who have earned less than 12 semester credit hours of its equivalent) to any institution within the System that has Board-approved admissions criteria, any student who is a resident of another state shall

1. Attain a composite score of at least 17 on the American College Test (ACT) or an equivalent score on the Scholastic Aptitude Test (SAT), or

2. Attain a composite score of at least 16 on the ACT (or equivalent score on the SAT) and have a cumulative high school grade point average (GPA) of at least 2.50 in a high school curriculum comparable to that required in Louisiana and rank in the upper 50% of the high school graduating class, or
3. Attain a composite score of at least 15 on the ACT (or equivalent score on the SAT) and have a cumulative high school GPA of at least 2.75 in a high school curriculum comparable to that required in Louisiana and rank in the upper 40% of the high school graduating class. (Addition approved 1/5/01)