June 7, 2011

Dr. Steven Leath  
Vice President for Research  
Office of the President  
University of North Carolina  
Post Office Box 2688  
Chapel Hill, North Carolina  27515-2688

Dear Dr. Leath:

Enclosed is UNC Charlotte’s request to establish a new Bachelor of Science in Neurodiagnostics and Sleep Science, as well as a request to establish the program online. The proposed program represents a collaboration between UNC Charlotte and UNC Chapel Hill to address emerging health care needs in the state.

Thank you for your consideration of this request. Provost Joan Lorden or I would be pleased to respond to any questions that you may have regarding this request.

Cordially,

[Signature]

Philip L. Dubois  
Chancellor

PLD/cfh

Enclosure (1 copy of Appendix C and 1 of Appendix G)

cc: Provost Joan F. Lorden  
Dr. Jane Neese
Executive Summary
Bachelor of Science in Neurodiagnostics and Sleep Science

Description of the Program: The Department of Kinesiology in the College of Health and Human Services at the University of North Carolina at Charlotte, in collaboration with the Departments of Allied Health Sciences and Neurology in the School of Medicine at the University of North Carolina at Chapel Hill, requests permission to establish a post-professional baccalaureate degree program in neurodiagnostics and sleep science (NDSS). Potential students for this program are Sleep Technologists and Electroneurodiagnostic Technologists who are already registered and practicing, but who want to pursue a BS degree to expand their professional knowledge and expand opportunities for career advancement. The NDSS program will provide a broad based foundation for sleep science professionals to gain vital skills of critical thinking and creative problem solving needed for key leadership, educational, and management roles in this emerging discipline. We anticipate that the program’s prospective students will be motivated and qualified practitioners who want to pursue this degree to become the institutional, educational, and health care leaders needed in this field. The proposed program will be the first of its type in the nation and will set the national standard for future BS degrees in NDSS.

Neurodiagnostic and sleep science procedures record and study the electrical activity of the brain, spinal cord, and peripheral nerves, the function of the cardiovascular system, and the function of the respiratory system. A variety of diagnostic tests are performed including recording sleep studies (polysomnograms), recording brain wave activity (electroencephalography), recording responses from peripheral nerve stimulation (nerve conduction velocities), recording stimulus evoked responses from the brain and spinal cord (Evoked Potentials), and monitoring brain and spinal cord activity during surgery (intraoperative monitoring). Therapeutic procedures are also performed including positive airway pressure and supplemental oxygen titration for people with certain sleep disorders such as apnea.

The curriculum of the NDSS program will provide the foundation for our graduates to advance scholarly pursuits, contribute to the professional knowledge base and promote high quality patient-centered service. Upon graduation, students are prepared with the knowledge, experience, and skills to sit for national registry examinations.

This curriculum of this program is a collaboration between the UNC Charlotte Department of Kinesiology and the UNC Chapel Hill School of Medicine. The Provosts of each institution have executed a formal written agreement attesting to this collaboration. Collaborative agreements include UNC Charlotte providing the academic home for the program as well as faculty and UNC Chapel Hill providing facilities, faculty, and specialized NDSS course content offered via distance education. This unique collaborative approach provides UNC Charlotte the ability to increase accessibility of this program to North Carolina and beyond. Inter-institutional resource utilization decreases the amount of new and existing resources needed for the NDSS program, leading to more efficient use of funds. This collaboration between UNC Charlotte and UNC Chapel Hill may serve as a new alternative model of education and state outreach.

Intended Audience: Potential students for this program are Sleep Technologists and Electroneurodiagnostic Technologists who have an associate’s degree and are already registered and practicing, but who want to pursue a BS degree to expand their professional knowledge and opportunities for career advancement. The NDSS program will provide a broad based foundation for sleep science professionals to gain vital discipline of thought, critical thinking, and creative problem solving needed for key leadership, educational, management, and research roles in this emerging discipline. We anticipate that the program’s prospective students will be motivated and qualified practitioners who want to pursue
this degree at the University to become the institutional, educational, governmental, and research leaders needed in the fields.

**Justification for the Program:** The proposed baccalaureate program is consistent with the University of North Carolina at Charlotte’s mission to offer “exemplary undergraduate programs,” the College of Health and Human Services mission to offer “professionally recognized and accessible undergraduate … programs that are nationally and globally relevant, and responsive to changing health care… needs in the state and region,” and the Department of Kinesiology’s mission to “promote optimal health and well-being by encouraging life-long movement and activity in a variety of populations through scholarly research, teaching and service.” The proposed program also aligns with the University of North Carolina at Chapel Hill’s mission to “extend knowledge-based services and other resources of the University to the citizens of North Carolina and their institutions” by preparing health care professionals with the knowledge, competence, and adaptive skills to fulfill educational, professional and leadership positions.

Addressing the needs of North Carolina and the nation by providing graduates to fulfill many vacancies in neurodiagnostic and sleep science leadership positions is consistent with the University’s mission to “address, as appropriate, regional, national and international needs.” An environment of research-centered learning and quality instruction will be at the core of the new program, which is consistent with the Department of Allied Health Sciences’ mission to provide “exemplary teaching, innovative research, and patient-centered clinical practice” and with the University’s mission to “provide high-quality undergraduate instruction…and to those values that foster enlightened leadership for the state and the nation.” Further, the development of this program is completely in alignment with the Department of Neurology’s mission (in part) within the School of Medicine at UNC Chapel Hill in “…providing high quality neurological consultation and specialty neurological care to the people of North Carolina and to others who travel to our state.” The medical director of this proposed program has provided a short video describing UNC Chapel Hill’s Department of Neurology’s commitment to the NDSS program and a description of the need for advanced technologists.

The number of patients seen for diagnosis and therapy for sleep-related disorders in North Carolina has increased dramatically over the past 20 years, with the most increase in the past 5 years. The number of patients seen for sleep studies is projected to continue this upward trend.

Hospitals are eagerly investing in sleep clinics to help meet the patient need. The October 24th issue of the Triangle Business Journal states “Helping people sleep well is becoming a big business, and Duke Raleigh Hospital is expanding…to double the size of its center….7 Sleep facilities such as Duke Raleigh Hospitals number more than 3,300 and sleep lab revenue nationally is expected to increase by 2012 to $5.8 billion from the current $4.5 billion according to Market data Enterprises.8 The National Sleep Foundation published an article stating “Market data also expects mainstream publicity regarding the importance of sleep to continue, along with heavy advertising for sleep drugs. Market data predicts the number of sleep labs will grow by 6 percent over the next four years”.9 North Carolina alone has more than 20 sleep centers accredited by the American Academy of Sleep Medicine, and this number is continuing to rise.10 Accredited sleep centers must employ qualified staff, which is a major issue the proposed program will positively affect.
APPENDIX C
UNIVERSITY OF NORTH CAROLINA
REQUEST FOR AUTHORIZATION TO ESTABLISH A NEW DEGREE PROGRAM

INSTRUCTIONS: Please submit five copies of the proposal General Administration. Each proposal should include a 2-3 page executive summary. The signature of the Chancellor is required. Proposals will be submitted electronically after January 1, 2010.

Date: 5/18/2011

Constituent Institution: The University of North Carolina at Charlotte

CIP Discipline Specialty Title: Health Professions and Related Sciences

CIP Discipline Specialty Number: 51.0999 Level: B X M 1st Prof D

Exact Title of the Proposed Degree: Neurodiagnostics and Sleep Science

Exact Degree Abbreviation (e.g. B.S., B.A., M.A., M.S., Ed.D., Ph.D.): B.S.

Does the proposed program constitute a substantive change as defined by SACS? Yes No

a. Is it at a more advanced level than those previously authorized? Yes No

b. Is the proposed program in a new discipline division? Yes No

Proposed date to establish degree program (allow at least 3-6 months for proposal review: month August year 2011

Do you plan to offer the proposed program away from campus during the first year of operation? Yes No

If so, complete the form to be used to request establishment of a distance education program and submit it along with this request.

I. DESCRIPTION OF THE PROGRAM
A. Describe the proposed degree program (i.e., its nature, scope, and intended audience).

The Department of Kinesiology in the College of Health and Human Services at the University of North Carolina at Charlotte, in collaboration with the Departments of Allied Health Sciences and Neurology in the School of Medicine at the University of North Carolina at Chapel Hill, requests permission to establish a post-professional baccalaureate degree program in neurodiagnostics and sleep science (NDSS). Potential students for this program are Sleep Technologists and Electroneurodiagnostic Technologists who are already registered and practicing, but who want to pursue a BS degree to expand their professional knowledge and expand opportunities for career
advancement. The NDSS program will provide a broad based foundation for sleep science professionals to gain vital skills of critical thinking and creative problem solving needed for key leadership, educational, and management roles in this emerging discipline. We anticipate that the program’s prospective students will be motivated and qualified practitioners who want to pursue this degree to become the institutional, educational, and health care leaders needed in this field. The proposed program will be the first of its type in the nation and will set the national standard for future BS degrees in NDSS.

**Neurodiagnostic and sleep science procedures** record and study the electrical activity of the brain, spinal cord, and peripheral nerves, the function of the cardiovascular system, and the function of the respiratory system. A variety of diagnostic tests are performed including recording sleep studies (polysomnograms), recording brain wave activity (electroencephalography), recording responses from peripheral nerve stimulation (nerve conduction velocities), recording stimulus evoked responses from the brain and spinal cord (Evoked Potentials), and monitoring brain and spinal cord activity during surgery (intraoperative monitoring). Therapeutic procedures are also performed including positive airway pressure and supplemental oxygen titration for people with certain sleep disorders such as apnea.

Neurodiagnostic and sleep science procedures are increasingly used in many areas of diagnostic and therapeutic care and health research. Example areas of medicine utilizing these procedures include:

- **Sleep disorders**: Polysomnography is used to diagnose sleep disorders and therapeutic techniques are used to correct certain sleep disorders. Common sleep disorders include insomnia, sleep apnea, narcolepsy, periodic limb movement disorder, hypersomnia, snoring, arousal disorders, sleep-wake transition disorders, circadian rhythm sleep disorders, sleepwalking, restless legs syndrome, and sleep disorders associated with mental disorders, neurological disorders, and other medical disorders.

- **Nervous system diseases/disorders**: Neurodiagnostic procedures are used to diagnose conditions such as seizures, epilepsy, congenital and developmental malfunctions, infectious diseases, movement and pain disorders, neuromuscular disorders, toxic and metabolic diseases, nutritional and endocrine disorders, tumors, degenerative disorders and dementia, and vascular disorders. It is also becoming standard to use these procedures to monitor the brain and spinal cord during surgery to reduce postoperative neurological deficits.

- **Behavioral/Psychiatric disorders**: Neurodiagnostic and sleep science procedures also aid in the evaluation of disorders such as psychotic disorders, depression and mood disorders, anxiety disorders, psychological disorders, and somatoform and dissociative disorders.

The College of Health and Human Services at the University of North Carolina at Charlotte has successful post-professional, distance education baccalaureate degree completion programs in nursing and respiratory therapy. The latter degree is housed in the Department of Kinesiology, which will serve as the academic home for the proposed degree given its experience with respiratory therapy and other allied health degree programs. UNC Charlotte is experienced with the successful initiation and maintenance of programs similar to the one proposed. UNC Charlotte, located in the largest city in a multi-state area, has well-established educational affiliation agreements with numerous hospitals and other agencies in order to provide opportunities for experiential learning including: Carolinas Medical Center and Novant Health / Presbyterian Hospital. UNC Chapel Hill is uniquely positioned to collaborate with UNC Charlotte to support this degree through its School of Medicine, with its departments of Allied Health Sciences (DAHS), which will provide faculty expertise for this program; and Neurology, which
operates the UNC Sleep Disorders Center, a unit of UNC Hospitals, through its Division of Sleep Medicine. The UNC Sleep Disorders Center is accredited by the American Academy of Sleep Medicine as a full service sleep center and a high-quality clinical setting.

**Nature of Program:** The curriculum of the NDSS program will provide the foundation for our graduates to advance scholarly pursuits, contribute to the professional knowledge base and promote high quality patient-centered service. Upon graduation, students are prepared with the knowledge, experience, and skills to sit for national registry examinations.

Currently, the highest education level for polysomnography and electroneurodiagnostic technology is an associate degree; therefore the baccalaureate degree is the most appropriate for this program. Potential students will have earned an associate’s degree and complete prerequisite courses before entering the program. The curriculum includes content to prepare students as advanced-level health care professionals in accordance with national accreditation standards and includes coursework in education, advanced clinical procedures, management, research, and leadership. Advanced roles in neurodiagnostics and sleep science require significant levels of analysis, problem solving, and professional judgment. This program will prepare students with the knowledge and skill sets to fulfill these advanced roles. Curriculum courses offered above the entry-level scope of practice will set this program apart and ahead of other programs with similar concentrations in our state, nation, and world.

Instruction for the proposed neurodiagnostics and sleep science post-professional program will combine web-based, distance education courses and on-campus laboratory sessions, clinical rotations, research projects, and campus/community presentations. Program completion time is projected at 2 years. Major concentrations include:

- Advanced principles in neurodiagnostic and sleep science design and function
- Principles of education for leaders
- Philosophy and application of scientific research
- Philosophy and principles of laboratory management, healthcare administration, and finance

Clinical rotations will take place through hospitals, specialized sleep and epilepsy labs, private practice, educational institutions, and research facilities. The clinical rotation is designed to maximize student exposure to all areas in neurodiagnostics and sleep science. Students are assigned to sites by the program. Students can indicate their first and second choices and indicate whether location or financial support is most important to them. In cases where there is competition for clinical sites of close proximity, the program will work with the financial aid office to determine the students with the greatest financial need.

**Scope:** The Neurodiagnostics and Sleep Science program has a global scope since there are no other programs offering a similar degree of this nature and the need for graduates is demonstrated in North Carolina, most other states in the US, and several other countries. It is anticipated that in the first years of the program, the majority of students will be citizens from within the United States.

**Intended Audience:** Potential students for this program are Sleep Technologists and Electroneurodiagnostic Technologists who have an associate’s degree and are already registered and practicing, but who want to pursue a BS degree to expand their professional knowledge and opportunities for career advancement. The NDSS program will provide a broad based foundation for sleep science professionals to gain vital
discipline of thought, critical thinking, and creative problem solving needed for key leadership, educational, management, and research roles in this emerging discipline. We anticipate that the program’s prospective students will be motivated and qualified practitioners who want to pursue this degree at the University to become the institutional, educational, governmental, and research leaders needed in the fields.

Program outcomes: Graduates will hold influential positions in clinical, educational, and research settings. They will use their professional knowledge and critical thinking skills to help create and maintain cost-effective practices for North Carolina and the nation. Graduates of the NDSS program will positively impact many aspects of healthcare, including:

- Quality of patient care
- Education of healthcare workers
- Building of needed accredited sleep centers in established and underdeveloped areas in North Carolina
- Attitudes of employers and co-workers
- Career ladders
- Insurance and reimbursement issues
- Legislative decisions directly affecting the field.

Program alumni will be prepared for advanced roles in neurodiagnostics and sleep science, which require significant levels of analysis, problem solving, and professional judgment. The NDSS program will uniquely further the knowledge base within health sciences and reach across disciplines of education, business, biomedical engineering, and public health. Graduates will also be well prepared for additional advanced degrees. In particular, the program will develop sleep technology leaders that will become:

- Educators and directors in associate degree programs
- Directors for laboratories
- Entrepreneurs
- Developers of new technology
- Researchers

B. List the educational objectives of the program.

1. Provide graduates with the broad scope of knowledge and understanding of the underlying systems and principles involved in neurodiagnostics and sleep science, as well as the complex adaptive skills needed to be able to create novel solutions to problems arising in their daily practice and in the fields of neurodiagnostics and sleep science.

2. Respond to the immediate and future needs of the community by providing competent, patient-centered, responsive, and proactive graduates who raise the standard of care.

3. Provide graduates with the skills for critically using (and participating in) health-related research and establishing life-long learning practices.

4. Prepare graduates to become faculty for Polysomnography and Electroneurodiagnostic technology associate degree (AAS) programs in North Carolina as well as all other states within the US and other countries.

5. Provide advanced professional education for individuals pursuing or actively involved in leadership roles and/or advanced degrees.
C. Describe the relationship of the program to other programs currently offered at the proposing institution, including the common use of: (1) courses, (2) faculty, (3) facilities, and (4) other resources.

The proposed disciplinary-specific courses in NDSS are unique in the institution and UNC system. However, the program proposes to leverage existing courses and institutional expertise in research, adult education, information technology, and management and leadership.

NDSS is an allied health profession and will be located within the College of Health and Human Services. The relationship between the NDSS profession and other health professions at the same level within the University is limited to a common goal of improving healthcare for the citizens of North Carolina, the nation, and the world.

Courses:
Existing courses in Nursing and Respiratory Care will be utilized in the curriculum to decrease course duplication. Other NDSS courses are new and will be developed (approximately 10 courses) by UNC Charlotte and UNC Chapel Hill.

Faculty:
The primary faculty of the NDSS program is Mary Ellen Wells. Dr. Joseph Paul Coyle, MD, will continue to teach the Respiratory Therapy courses in the program’s core. An additional faculty member will be added to teach in the NDSS program at 0.5 FTE. Clinical instructors are non-paid and include laboratory directors, faculty, residents, and physicians within UNC Hospitals. Clinical instructors will also be utilized from other accredited laboratories and acute care centers, primarily in North Carolina.

Facilities:
The web-based courses require minimal classroom support. Video and teleconferencing activities will utilize the Video Conferencing Center located within the UNC Hospitals Clinical Neurophysiology Laboratory.

Course presentations will take place in Bondurant Hall and the space will be scheduled through the Medical School Teaching Laboratories (MSTL).

Limited laboratory instruction will take place in the UNC Hospitals Clinical Neurophysiology Department and Sleep Disorders Center.

Other Resources:
Web-based courses will utilize software and services available through UNC Charlotte and UNC Chapel Hill as well as open source content management systems, such as Moodle and Sakai, which have minimal to no cost.

UNC Charlotte’s Office of Extended Academic Programs works with academic departments and colleges to deliver off-campus face-to-face or technology-based instruction. The Office of Extended Academic Programs shares responsibility with the academic departments and colleges for distance education programs and takes the lead in coordinating all administrative and student support services.

The UNC hospitals Information Services Department will be used as support for the Video Conferencing Center. The support department is onsite with 24/7 on-call services.

Technical support for web-based curriculum includes student and faculty access to ITS and faculty support from the Office of Information Services in the Medical School.
D. Describe any explorations of collaborative offering of this program and the results of those explorations.

This curriculum of this program is a collaboration between the UNC Charlotte Department of Kinesiology and the UNC Chapel Hill School of Medicine. The Provosts of each institution have executed a formal written agreement attesting to this collaboration. Collaborative agreements include UNC Charlotte providing the academic home for the program as well as faculty and UNC Chapel Hill providing facilities, faculty, and specialized NDSS course content offered via distance education. This unique collaborative approach provides UNC Charlotte the ability to increase accessibility of this program to North Carolina and beyond. Inter-institutional resource utilization decreases the amount of new and existing resources needed for the NDSS program, leading to more efficient use of funds. This collaboration between UNC Charlotte and UNC Chapel Hill may serve as a new alternative model of education and state outreach.

II. JUSTIFICATION FOR THE PROGRAM-NARRATIVE STATEMENT

A. Describe the proposed program as it relates to:

1. the institutional mission and strategic plan and response to UNC Tomorrow

   The proposed baccalaureate program is consistent with the University of North Carolina at Charlotte’s mission to offer “exemplary undergraduate programs,” the College of Health and Human Services mission to offer “professionally recognized and accessible undergraduate ... programs that are nationally and globally relevant, and responsive to changing health care... needs in the state and region,” and the Department of Kinesiology’s mission to “promote optimal health and well-being by encouraging life-long movement and activity in a variety of populations through scholarly research, teaching and service.” The proposed program also aligns with the University of North Carolina at Chapel Hill’s mission to “extend knowledge-based services and other resources of the University to the citizens of North Carolina and their institutions” by preparing health care professionals with the knowledge, competence, and adaptive skills to fulfill educational, professional and leadership positions. Addressing the needs of North Carolina and the nation by providing graduates to fulfill many vacancies in neurodiagnostic and sleep science leadership positions is consistent with the University’s mission to “address, as appropriate, regional, national and international needs.” An environment of research-centered learning and quality instruction will be at the core of the new program, which is consistent with the Department of Allied Health Sciences’ mission to provide “exemplary teaching, innovative research, and patient-centered clinical practice” and with the University’s mission to “provide high-quality undergraduate instruction...and to those values that foster enlightened leadership for the state and the nation.” Further, the development of this program is completely in alignment with the Department of Neurology’s mission (in part) within the School of Medicine at UNC Chapel Hill in “... providing high quality neurological consultation and specialty neurological care to the people of North Carolina and to others who travel to our state.” The medical director of this proposed program has provided a short video describing UNC Chapel Hill’s Department of Neurology’s commitment to the NDSS program and a description of the need for advanced technologists. View the video at http://media.med.unc.edu/sleep/sleep.html.

   The proposed program’s educational objectives have a direct relationship to the UNC Tomorrow Initiative and the needs of our State as described in the 2007 UNC Tomorrow Final Commission Report. Compliance with the UNC Tomorrow Initiative
will be established by addressing the following major findings and recommendations of the UNC Tomorrow Final Commission Report Initiative:

**Major Finding:** UNC should educate its students to be personally and professionally successful in the 21st century and, to do so, should enhance the global competitiveness of its institutions and their graduates.

4.1.1. UNC should prepare its students for successful professional and personal lives in the 21st century, equipping them with the tools they will need to adapt to the ever-changing world.

4.1.2. UNC programs, especially research programs, should be globally competitive to ensure that they are globally relevant and significant.

The proposed program addresses 4.1.1 and 4.1.2 by providing an opportunity for students to earn a baccalaureate degree in neurodiagnostics and sleep science, which is the first (to our knowledge) of its type in the world, and prepare them with the complex adaptive skills to excel as leaders in the health care field.

**Major Finding:** UNC should increase access to higher education for all North Carolinians, particularly for underserved regions, underrepresented populations, and non-traditional students.

4.2.2. UNC should continue ongoing efforts with the North Carolina Community College System to strengthen and streamline articulation between the two systems to develop a more seamless relationship.

The proposed program addresses 4.2.2 by providing qualified instructors and program directors for neurodiagnostic and sleep science educational programs in the North Carolina Community College System and providing a pathway for Community College neurodiagnostic and sleep science graduates to earn a baccalaureate degree.

**Major Finding:** UNC should lead in improving the health and wellness of all people and communities in our state.

4.5.1. UNC should lead in improving health and wellness in North Carolina.

4.5.2. UNC should educate more health professionals

4.5.3. UNC should lead in utilizing health information to improve health and wellness in North Carolina.

The proposed program addresses 4.5.1 – 4.5.3 by providing graduates who will promote improving health and quality of life of all people. The graduates will also place priority on facilitating patient-centered clinical practice and innovation in health care.

**Major Finding:** UNC should become more directly engaged with and connected to the people of North Carolina, its regions, and our state as a whole.

4.7.1. UNC should apply, translate, and communicate research and scholarship to broader audiences.

The curriculum of the proposed program addresses 4.7.1 by providing the foundation for the graduates to advance scholarly pursuits, contribute to the professional knowledge base and promote high quality patient centered service to the people of North Carolina and the world.
2. **student demand**

To assess the demand for a baccalaureate degree program in NDSS, students enrolled in the five community college programs in NC with a concentration in polysomnography and/or electroneurodiagnostic technology were surveyed. Eighty-two percent of the students surveyed (N = 39 respondents) indicated that they were interested in pursuing a BS degree in neurodiagnostics and sleep science. Students enrolled in the 33 CAAHEP accredited polysomnography and electroneurodiagnostic technology programs in the US were also surveyed and 65% of the respondents (N = 34) were interested in pursuing a BS degree in neurodiagnostics and sleep science. Program directors from the NC Community College Polysomnography and Electroneurodiagnostic Technology with Add-on Polysomnography programs stated their students and graduates are interested in a BS degree in Neurodiagnostics and Sleep Science.

Letters of support from the North Carolina Community College System, Council for Allied Health in North Carolina, UNC Chapel Hill School of Medicine Department of Neurology, North Carolina Association of Sleep Technologists, and the American Society of Electroneurodiagnostic Technologists all attest to the interest in and need for this program in North Carolina.

Anecdotal evidence of student demand for the Neurodiagnostics and Sleep Science BS degree also exists from conversations with prospective students, student advisors, community college faculty and program directors, Sleep medicine physicians, and sleep and neurophysiology laboratory managers in North Carolina. Prospective students are showing great enthusiasm in the possibility of earning a new degree from a program that will be the first in the nation and world.

Some Polysomnographic and electroneurodiagnostic technologists holding associate degrees and a registry in the NDSS field (our target population) who have expressed interest in an NDSS BS degree are currently working in the following capacities:

- Director and developer of a nationally accredited polysomnographic technology program within the North Carolina Community College System
- Sleep laboratory entrepreneur
- Supervisor of neurophysiology laboratory in rapidly growing hospital in eastern NC
- Lead technologist in a new pharmaceutical research facility in eastern NC
- Active involvement in writing legislation for NC
- Recently given lectures and presentations in annual conferences for the field’s professional societies
- Have held and currently hold offices in the field’s professional societies

The Board of Registered Polysomnographic Technologists (the international registry for Sleep Technologists) currently has limited pathways for technologists to qualify and apply to sit for their registry examination. The “on-the-job trained” pathway will soon be eliminated and the only pathway for registration will be graduation from a nationally accredited formal education program. This will further increase the student demand for the program as the need for educators will continue to rise.

3. **societal need** (For graduate, first professional, and baccalaureate professional programs, cite manpower needs in North Carolina and elsewhere.)
“Sleep medicine has far reaching effects beyond public health. As part of our own being, sleep is integral to how we function in society. Technologists play a critical role in this discipline. We need well trained individuals across the spectrum to move our understanding and level of care forward,” said Brad Vaughn, M.D., Professor of Neurology, Chief, Division of Sleep and Epilepsy, UNC School of Medicine at the University of North Carolina at Chapel Hill.

Sleep disorders affect approximately one-third of the North Carolina population, or almost 3 million people. These disorders are directly associated with decreased cognitive function, depression, weight gain, and irritability; and often result in death due to heart disease, diabetes, and accidents associated with these primary effects. It is estimated that approximately half of all individuals who have moderate to severe apnea will die within 10 years.

Devastating events with sleep dysfunctions traced as factors include:

- Exxon Valdez disaster\(^1\) and \(^2\)
- Challenger space shuttle explosion (CNN)\(^3\)
- Three Mile Island nuclear accident (U.S. NRC)\(^4\)
- Chernobyl explosion (BBC)\(^5\) and \(^6\)

As seen in the examples and statistics above, we have a local problem as well as a global problem. Societal awareness of neurological and sleep disorders and the effects on individual lives and society as a whole will be directly and positively affected by advancing education in these areas. Patient advocacy will also be increased.

Hospitals are eagerly investing in sleep clinics to help meet the patient need. The October 24\(^{th}\) issue of the Triangle Business Journal states “Helping people sleep well is becoming a big business, and Duke Raleigh Hospital is expanding...to double the size of its center...”.\(^7\) Sleep facilities such as Duke Raleigh Hospitals number more than 3,300 and sleep lab revenue nationally is expected to increase by 2012 to $5.8 billion from the current $4.5 billion according to Market data Enterprises.\(^8\) The National Sleep Foundation published an article stating “Market data also expects mainstream publicity regarding the importance of sleep to continue, along with heavy advertising for sleep drugs. Market data predicts the number of sleep labs will grow by 6 percent over the next four years”.\(^9\) North Carolina alone has more than 20 sleep centers accredited by the American Academy of Sleep Medicine, and this number is continuing to rise.\(^10\) Accredited sleep centers must employ qualified staff, which is a major issue the proposed program will positively affect.

The number of patients seen for diagnosis and therapy for sleep-related disorders in North Carolina has increased dramatically over the past 20 years, with the most increase in the past 5 years. This increase is demonstrated by the data from UNC Hospitals Sleep Disorders Center from 1998 to 2008 in the following chart. The number of patients seen for sleep studies is projected to continue this upward trend.
In a recent survey of North Carolina sleep disorders laboratories accredited by the American Academy of Sleep Medicine (N = 16), 73% of the respondents projected an increase in the number of technologists needed in the near future. In addition, 73% indicated difficulty in recruiting polysomnographic technologists with the necessary skills to fulfill management and leadership roles within their institutions.

The graph below demonstrates the growth in Polysomnographic testing in the United States from 1998-2008. This growth is leading to a national shortage of qualified entry-level sleep technologists. New associate degree programs are helping to address this need. These trends have led to a great need for advanced level technologists, and the proposed NDSS program is designed to meet this need.

Educators, students, and employers attest to the increasing need for an advanced degree in NDSS. Recently, program directors of respiratory therapy, polysomnography, and electroneurodiagnostic technology programs were surveyed (N = 122) and over 70% agree that:
• Sleep centers have a need for technologists with advanced training or specialization
• Education requirements for sleep technologists will increase in the next 5-10 years
• The need for educators will increase in the next 5-10 years

The Committee on Accreditation of Allied Health Education (CAAHEP) is the national accreditation body for allied health programs. In 2008 CAAHEP increased the standard for program directors to a minimum degree at the baccalaureate level for electroneurodiagnostic technology programs. The current minimum degree required by CAAHEP of polysomnography programs is an associate's degree, which was adopted in 2004 as a standard. The 2004 standards are scheduled for review and/or revision in the near future.

Relationship to NC Community College System

The 2009 North Carolina General Assembly passed into law "The Polysomnography Practice Act," (S.L. 2009-434). This new law mandates that as of January 1, 2012, it will be illegal for individuals not registered with the NC Medical Board to:

• Practice Polysomnography
• Represent, orally or in writing, that the person is credentialed to practice polysomnography
• Use the title “Registered Polysomnographic Technologist” or the initials “RPSGT”

To register with the NC Medical Board, individuals must earn the RPSGT credential from The Board of Registered Polysomnographic Technologists (BRPT), which is the international registry for Sleep Technologists. Nationally, the BRPT is soon eliminating all on-the-job-training pathways and will require all applicants to have an accredited degree in Polysomnography. The Centers for Medicare and Medicaid require credentialed technologists to monitor sleep testing in independent sleep laboratories. Labs accredited by the American Academy of Sleep Medicine require all technologists to have formal training. As formal education requirements increase, the American Academy of Sleep Medicine (AASM) in North Carolina is still documenting a critical shortage of qualified and licensed technologists.

The North Carolina Community College System (NCCCS) has responded to this immediate need by adding Polysomnography programs and/or Electroneurodiagnostic technology programs at six institutions, with more on the way. North Carolina currently leads in the nation for the most accredited associate degree programs with a concentration in Polysomnography and is demonstrating a current need for qualified faculty. The distribution of North Carolina programs is demonstrated in the following image. It is important to note the location of the UNC Chapel Hill and the UNC Charlotte campuses in relation to the existing community college programs. The locations of the UNC campuses provide excellent access for all students in the NCCCS.
NCCCS campuses with polysomnography/electroneurodiagnostic technology programs accredited by the Commission on Accreditation of Allied Health Education Programs

The proposed NDSS program will not compete with community colleges, but will articulate with the community colleges’ programs and respond to their need for qualified faculty. We have found unanimous support for the proposed NDSS BS degree among program directors and administrators within the NC Community College System Polysomnography and Electroneurodiagnostic Technology with Add-on Polysomnography programs. (See appendix for copies of support letters for this degree from representatives of the NCCCS).

4. impact on existing undergraduate and/or graduate academic programs of your institution. (e.g., Will the proposed program strengthen other programs? Will it stretch existing resources? How many of your programs at this level currently fail to meet Board of Governors’ productivity criteria? Is there a danger of proliferation of low-productivity degree programs at the institution?)

This new proposed degree is a specialized program in allied health care utilizing both an interdisciplinary and multidisciplinary approach within the College of Health and Human Services, throughout the University of North Carolina at Charlotte and University of North Carolina at Chapel Hill. This program will complement the existing portfolio of degree programs in applied health areas, including public health, respiratory care, nursing, athletic training, exercise science, and social work. The degree program will be administratively housed in the Department of Kinesiology. The focus of the proposed curriculum content is also consistent with the Department’s expertise on cardiopulmonary systems and function. The new program will utilize 3 courses that are already being taught in existing programs in the College. The 9 new proposed courses are specific to the neurodiagnostics and sleep science discipline, and complement the Department’s current upper division offerings at the 3000 & 4000 level.
B. Discuss potential program duplication and program competitiveness.
   1. Identify similar programs offered elsewhere in North Carolina. Indicate the location and distance from the proposing institution. Include a) public and b) private institutions of higher education.

No public or private institutions of higher education in North Carolina currently operate baccalaureate level programs similar to the proposed NDSS program. The proposed NDSS program will not compete with any of the current BS degrees within the UNC Charlotte College of Health and Human Services.

The proposed NDSS program will not compete with community colleges, but will actually respond to their growing need for qualified faculty to teach in these community college programs. Further, this new degree will provide an additional pathway for articulation agreements between UNC Charlotte and the NC Community College System. We have found unanimous support for the proposed NDSS BS degree among program directors and higher administrators within the NC Community College System Polysomnography and Electroneurodiagnostic Technology with Add-on Polysomnography programs. (See appendix for copies of support letters for this degree from representatives of the NCCCS).

2. Indicate how the proposed new degree program differs from other programs like it in the University. If the program duplicates other UNC programs, explain a) why is it necessary or justified and b) why demand (if limited) might not be met through a collaborative arrangement (perhaps using distance education) with another UNC institution. If the program is a first professional or doctoral degree, compare it with other similar programs in public and private universities in North Carolina, in the region, and in the nation.

No public or private institutions of higher education at UNC Charlotte, in North Carolina, or the nation currently operate baccalaureate level programs similar to the proposed new degree program.

C. Enrollment (baccalaureate programs should include only upper division majors, juniors and seniors).

Headcount enrollment
Show a five-year history of enrollments and degrees awarded in similar programs offered at other UNC institutions (using the format below for each institution with a similar program); indicate which of these institutions you consulted regarding their experience with student demand and (in the case of professional programs) job placement. Indicate how their experiences influenced your enrollment projections.

not applicable (no similar programs at UNC institutions)

Use the format in the chart below to project your enrollment in the proposed program for four years and explain the basis for the projections:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Part-time</td>
<td>10</td>
<td>40</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>TOTALS</td>
<td>10</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>
Enrollment projections are based upon the following

- Number of registered sleep technologists in NC
- Rate of increase in new sleep technologists in NC per year
- Density of sleep technologists employed in NC accredited laboratories
- Comparison with other allied health BS degree enrollments at UNC Charlotte

Please indicate the anticipated steady-state headcount enrollment after four years:
Full-time ___0____ Part-time ___60____ Total ___60____

SCH production (upper division program majors, juniors and seniors only, for baccalaureate programs).

Use the format in the chart below to project the SCH production for four years. Explain how SCH projections were derived from enrollment projections (see UNC website for a list of the disciplines comprising each of the four categories).

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Student Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Category</td>
<td>UG</td>
</tr>
<tr>
<td>Category I</td>
<td></td>
</tr>
<tr>
<td>Category II</td>
<td></td>
</tr>
<tr>
<td>Category III</td>
<td>170</td>
</tr>
<tr>
<td>Category IV</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Student Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Category</td>
<td>UG</td>
</tr>
<tr>
<td>Category I</td>
<td></td>
</tr>
<tr>
<td>Category II</td>
<td></td>
</tr>
<tr>
<td>Category III</td>
<td>720</td>
</tr>
<tr>
<td>Category IV</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3</th>
<th>Student Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Category</td>
<td>UG</td>
</tr>
<tr>
<td>Category I</td>
<td></td>
</tr>
<tr>
<td>Category II</td>
<td></td>
</tr>
<tr>
<td>Category III</td>
<td>1,140</td>
</tr>
</tbody>
</table>

14
### Category IV

<table>
<thead>
<tr>
<th>Year 4</th>
<th>Student Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Category</td>
<td>UG</td>
</tr>
<tr>
<td>Category I</td>
<td></td>
</tr>
<tr>
<td>Category II</td>
<td></td>
</tr>
<tr>
<td>Category III</td>
<td></td>
</tr>
<tr>
<td>Category IV</td>
<td></td>
</tr>
</tbody>
</table>

Schematics used in determining total SCH’s are as follows:

Part-time student enrollment hours
Year 1 – 9 credits in fall, 5 in spring, and 3 in summer
Year 2 – 9 credits in fall and 12 in spring

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Student Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total SCHs = 170</td>
<td>Fall</td>
</tr>
<tr>
<td>10 part-time students</td>
<td>90</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Student Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total SCHs = 720</td>
<td>Fall</td>
</tr>
<tr>
<td>10 continuing part-time students</td>
<td>90</td>
</tr>
<tr>
<td>30 new part-time students</td>
<td>270</td>
</tr>
<tr>
<td>Total</td>
<td>360</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3</th>
<th>Student Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total SCHs = 1,140</td>
<td>Fall</td>
</tr>
<tr>
<td>30 continuing part-time students</td>
<td>270</td>
</tr>
<tr>
<td>30 new part-time students</td>
<td>270</td>
</tr>
<tr>
<td>Total</td>
<td>540</td>
</tr>
</tbody>
</table>

### III. PROGRAM REQUIREMENTS AND CURRICULUM

A. Program Planning.

1. List the names of institutions with similar offerings regarded as high quality programs by the developers of the proposed program.

   No similar programs exist at the baccalaureate level

2. List other institutions visited or consulted in developing this proposal. Also discuss or append any consultants’ reports, committee findings, and simulations
Evolving the field of neurodiagnostics and sleep science to a BS degree is being discussed throughout the professional community. Presentations on this topic have been given at national conferences and discussions are taking place in North Carolina professional associations and regional societies. National societies are building task forces to promote the idea of a BS degree. Many associate degree schools and graduates have expressed interest in a BS degree in this field. All of these references are at the root of this proposal.

The neurodiagnostics and sleep science program received a generous commitment from a private donor in 2008 to fund a range of program start-up expenses including the salaries of the program director and faculty members. Another generous gift was received in 2010 to fund course development.

In 2008, a group of people interested in advancing the field of NDSS partnered to build relationships among but not limited to: potential students, faculty, staff, healthcare providers, providers of healthcare supplies and equipment, alumni, stakeholders, employees, and employers. This group has reviewed program goals and outcomes, reviewed a draft curriculum, researched funding needs, developed student recruitment strategies, and discussed issues related to the proposed program. If approval is granted for the proposed program, this group will transition to an academic advisory committee. The proposed committee consists of the natural partners for a program designed to prepare graduates for advanced roles in the NDSS field. Students, graduates, faculty, sponsor administration, employers, physicians, and public representatives comprise the group and are as follows:

- Mary Ellen Wells, MS, RPSGT, R.EEG T., R.NCS T., Clinical Assistant Professor, Department of Allied Health Sciences, UNC School of Medicine
- Lee McLean, Ph.D., Associate Dean and Chair, Department of Allied Health Sciences, UNC School of Medicine
- Bradley V. Vaughn, MD, D.ABSM, Vice Chair and Professor of Neurology, University of North Carolina School of Medicine, Medical Director UNC Sleep Center
- Karen Rowe, BS, RPSGT, Polysomnography Program Director/Instructor, Lenoir Community College
- Kyle Kalkowski, R. EEG T., Technical Director – UNC Sleep Center and Clinical Neurophysiology Lab
- Jimmy Singleton, BS, RPSGT, Atlantic Sleep Center, Facility Director
- Will Underwood, RPSGT, President – NC Association of Sleep Technologists, UNC Sleep Disorders Center
- Sandra Mathis, BA, RPSGT, RLVT, PSG Program Director, Pitt Community College
- Tammy Williams, RRT, RCP, RPSGT, Polysomnography Program Coordinator, Sandhills Community College
- Sarah (Hoffman) Stephens R. EEG T., RPSGT, Department Head, Polysomnography, Catawba Valley Community College
- Renee Batts, RN, MSN, Program Coordinator, Health Sciences, North Carolina Community College System
- Sheila Wilson, AAS, UNC Clinical Neurophysiology
This group is in regular contact to discuss instructional formats, curriculum, resources, admissions requirements, and other issues related to the proposed NDSS program. Members of the group have attended and will continue to attend state and national professional meetings to discuss the proposed program. These professional meetings include:

- The North Carolina Association of Sleep Technologists (NCAST)
- The Southern Society of Electroneurodiagnostic Technologists (SSET)
- The American Association of Sleep Technologists (AAST)
- The American Society of Electroneurodiagnostic Technologists (ASET)

B. Admission. List the following:

1. Admissions requirements for proposed program (indicate minimum requirements and general requirements).

Minimum and general admission requirements are as follows:

- Associate degree from an accredited institution with a cumulative grade point average of 2.0 or better
- Training in sleep technology (validated by course work in the proposed NDSS program)
- Registration as an RPSGT or R.EEG T. by the Board of Registration of Polysomnographic Technologists or the American Board of Registration of Electroencephalographic and Evoked Potential Technologists
- Earn at least a C in all coursework taken by the end of the semester prior to the semester for which application is made
- Completed application for the proposed NDSS program and three professional references.

The ideal candidate for the Neurodiagnostics and Sleep Science program will demonstrate strong academic standing, especially in math and science, as well as a commitment to health care. Applicants with the highest collective scores and who meet all criteria for clinical rotations will receive admission to the program up to its capacity. The NDSS program is cohort based and admits new students each fall semester.

In an effort to meet societal health care needs, it is the desire of the Neurodiagnostics and Sleep Science program to recruit students to mirror the diversity of North Carolina with regard to race, gender, and non-traditional students.
2. Documents to be submitted for admission (listing or sample).

Documents required for application evaluation are:

- Application
- Transcripts of all schools of higher education attended
- Three letters of recommendation attesting to the applicant's academic ability and suitability for a health care career
- A current basic life support or basic CPR certification
- A photocopy of registration as RPSGT or R.EEG T

C. Degree requirements. List the following:

1. Total hours required. Major. Minor.

The minimum total credit hours required to earn the bachelor's degree is 120. Total academic credit hours in the NDSS program is 38 for applicants who have completed an associate degree from an accredited institution and are registered by the BRPT and/or ABRET. Students will receive up to 46 hours through credit by examination after successfully passing NDSS 3101 with a C or better. The difference between the number of credits transferred through the associate degree and those earned in the major will constitute the number of hours awarded by the credit by examination procedure (see below under 4).

2. Proportion of courses open only to graduate students to be required in program (graduate programs only).

N/A

3. Grades required.

Students must receive a minimum average of C- (70%) in each course to receive credit towards graduation. Grades will be consistent with the Universities undergraduate requirements.

4. Amount of transfer credit accepted.

The NDSS program will follow the undergraduate policy on transfer of credits. Students will receive no more than 46 hours of placement credit toward the NDSS program upon completion of the following:

- Earning an associate degree from an accredited institution
- Completing a registry by the BRPT and/or ABRET
- Gaining admission into the NDSS program
- Successfully completing 1 transition courses in the NDSS program (3101)

5. Other requirements (e.g. residence, comprehensive exams, thesis, dissertation, clinical or field experience, "second major," etc.).

Due to the program being distance education, residency is not required. However, students are required to attend an on campus program orientation.
All students are required to participate in clinical education and an internship. Clinical education rotations and internships are scheduled by the program’s clinical coordinator and typically include a combination of one or more of the following:

- Hospital
- Freestanding laboratory
- Education institution
- Research facility
- Private practice

6. Language and/or research requirements.

There are no language requirements in addition to the University’s general education requirements. Students will complete 3 credit hours of health care research with a focus on scientific methodology, case studies, directed research, and publication of health-related research.

7. Any time limits for completion.

All requirements for graduation must be met within 4 years of enrolling in the Neurodiagnostics and Sleep Science program.

D. List existing courses by title and number and indicate (*) those that are required. Include an explanation of numbering system. List (under a heading marked "new") and describe new courses proposed.

**Existing Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>* NURN 4201</td>
<td>Information Technology: Applications in Health Care (2)</td>
<td></td>
</tr>
<tr>
<td>* RESP 4102</td>
<td>Program Administration (3)</td>
<td></td>
</tr>
<tr>
<td>* RESP 4103</td>
<td>Evidence-Based Practice (3)</td>
<td></td>
</tr>
</tbody>
</table>

**New Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>* NDSS 3101</td>
<td>Pathophysiology of Sleep, Neurological, and Related Disorders (3)</td>
</tr>
<tr>
<td>* NDSS 3102</td>
<td>Neurological and Sleep Diagnostic and Therapeutic Methods, and Monitoring Services (3)</td>
</tr>
<tr>
<td>* NDSS 3104</td>
<td>Advanced Sleep and Neurodiagnostic Clinical Procedures (3)</td>
</tr>
<tr>
<td>* NDSS 3405</td>
<td>Practicum (3)</td>
</tr>
<tr>
<td>* NDSS 4101</td>
<td>Principles and Practice of Healthcare Education (3)</td>
</tr>
<tr>
<td>* NDSS 4104</td>
<td>Advanced Physiological Monitoring and Data Acquisition (3)</td>
</tr>
<tr>
<td>* NDSS 4105</td>
<td>Leadership in Healthcare Organizations (3)</td>
</tr>
<tr>
<td>* NDSS 4406</td>
<td>Internship (3)</td>
</tr>
<tr>
<td>* NDSS 4107</td>
<td>Sleep and Neurodiagnostic Sciences Capstone (6)</td>
</tr>
</tbody>
</table>

Numbering system explanation: 3000 level courses are junior level courses and 4000 level courses are senior level courses. 01, 02, etc. follow the order in which students are advised to enroll in courses.
IV. FACULTY
A. List the names of persons now on the faculty who will be directly involved in the proposed program. Provide complete information on each faculty member's education, teaching experience, research experience, publications, and experience in directing student research, including the number of theses and dissertations directed for graduate programs. The official roster forms approved by SACS can be submitted rather than actual faculty vita.

   Mary Ellen Wells
   Joseph Paul Wells
   (see vita in the appendices)

B. Estimate the need for new faculty for the proposed program over the first four years. If the teaching responsibilities for the proposed program will be absorbed in part or in whole by the present faculty, explain how this will be done without weakening existing programs.

   We plan to hire one additional part-time faculty member to teach courses in the NDSS program (0.5 FTE).

C. If the employment of new faculty requires additional funds, please explain the source of funding.

   We anticipate that we may need one part time faculty member by 2013 to help teach NDSS courses, and to coordinate the administrative and clinical components of the program. There will be no need for student assistance for this program.

D. Explain how the program will affect faculty activity, including course load, public service activity, and scholarly research.

   The program will enhance the public service activity of the faculty. Course load will be assigned to ensure faculty will not be overloaded so they may be actively involved in the community and professional associations. NDSS courses will reflect the most current issues and trends in the field, which will provide faculty the opportunities for scholarly research to be implemented in their course planning.

V. LIBRARY
A. Provide a statement as to the adequacy of present library holdings for the proposed program.

   Due the collaborative nature of this curriculum, the NDSS program will utilize the libraries of both the UNC Charlotte and the UNC Chapel Hill campuses. Adequacy of each is described below:

   UNC Charlotte library holdings

   The Chair of the Department of Kinesiology (Dr. Mitch Cordova) has communicated with Ms. Jean Hiebert Health & Human Services Librarian from Atkins Library regarding what holdings the library currently has that will support the proposed curriculum. In summary, the library appears to have adequate holdings (textbooks and journals) to initially begin this program. The library is committed to obtaining pertinent textbooks related specifically to
Neurodiagnostics and Sleep Science in time for Fall 2011. Moreover, as the program continues to grow over time, the appropriate requests will be made to the library to support the program’s needs.

UNC Chapel Hill library holdings

The Library currently supports the Sleep Medicine Division in the School of Medicine’s Department of Neurology and the UNC Sleep Disorders Center, accredited as a full service sleep center. Existing library collections hold several hundred subject-specific books, and more than twenty journal subscriptions are already available to support both new and existing sleep and neurodiagnostic programs.

An analysis of current collection strength reveals that the library has electronic subscriptions or access to all but one of the most needed journals and to approximately half of the core texts required for the new program, as designated by program faculty member Mary Ellen Wells.

The Library supports other distance education programs in four of the five schools associated with it, including three other programs in the Department of Allied Health. General resource support is provided by a large and expanding collection of electronic journals, books, databases, and other resources available online from on campus and off campus. More than 200 databases are available, of which PubMed, CINAHL, CogPrints, and PsycINFO are central to the new program.

B. State how the library will be improved to meet new program requirements for the next five years. The explanation should discuss the need for books, periodicals, reference material, primary source material, etc. What additional library support must be added to areas supporting the proposed program?

UNC Charlotte library

The Atkins Library at UNC Charlotte is committed to improving its holdings in Neurodiagnostics & Sleep Science as the program becomes established and matures over the years. As indicated in our Library Consult, the holdings are adequate at this time, and the Library is committed to supporting this program throughout its existence.

UNC Chapel Hill library

The UNC Chapel Hill Health Science Library (HSL) has a dedicated librarian liaison for the Department of Allied Health who works solely and closely with its constituent programs, allowing focused and continuous support for their library and research needs, both on and off campus. This librarian will work with the students and faculty of the proposed program to ensure that need for library resources and instruction are met as a priority.

Collections development staff will also work with faculty member Mary Ellen Wells to create a staggered plan for acquiring additional books, media, and journals to support the new program. A central core of textbooks and reference materials will be added to library holdings first, with listed additional materials to support the program as it matures. Electronic format will be preferred when available in order to support distance and off-campus students as well as on-
campus students and faculty. The UNC-HSL will provide assistance with creation of custom digital teaching materials.

The UNC-HSL Library will purchase requested media materials and the remaining texts and journal subscription as soon as the budget will allow. As a state university, the University of North Carolina is experiencing extraordinary budgetary pressure. Despite this, the UNC-HSL will work with the faculty of the new program to create further lists of desired ancillary materials to acquire after the already-developed core list of resources has been added.

The library is exploring cost-sharing options, including support from the program’s donor funds designated for the start-up of this program. Funds coming to the library from increased enrollment, though uncertain and small, could also be used for new materials.

C. Discuss the use of other institutional libraries.

A Distance Education Librarian is employed to ensure that Library resources and services are provided appropriately to course faculty, the Senior Program Manager in Distance Education, and enrolled students, including through such means as electronic document delivery, the arrangement of borrowing privileges for students at other libraries, and mailing (or delivery by other means) of materials to individual students. If NDSS faculty and/or students discover a resource [book, journal article, dissertation, etc.] which is not owned by J. Murrey Atkins Library, they can request the Library to obtain it from another source via the Library’s Inter-library Loan Service. Candidates and faculty also have borrowing privileges at all 17 UNC campuses across the state.

UNC Chapel Hill is a member of the Triangle Research Libraries Network (TRLN), which allows UNC students to use libraries at Duke University, North Carolina Central University and North Carolina State University. North Carolina also has five community colleges with electroneurodiagnostic and/or polysomnographic technology programs, with library collections available to UNC students upon interlibrary loan request.

The UNC Health Sciences Library is a Resource Library for the National Network of Libraries of Medicine, meaning that it vigorously participates in national and international interlibrary loan consortia. Belonging to these consortia allows the library to borrow materials quickly from other libraries around the nation and the world.

VI. FACILITIES AND EQUIPMENT

A. Describe facilities available for the proposed program.

The NDSS program will be housed in Belk Gymnasium within the Department of Kinesiology. The academic space within Belk Gymnasium includes: office spaces, extensive research laboratories, an athletic training clinical instructional laboratory, and 5 classrooms.

Additionally, the UNC School of Medicine will provide office, conference, and classroom space for the proposed program. UNC Hospitals Clinical Neurophysiology Laboratory and Sleep Center will also provide classroom, laboratory, and practicum space.
Office and classroom space:

Belk Gymnasium contains office space for 22 full time faculty in the Department of Kinesiology at UNC Charlotte. The classrooms are equipped with “smart technology” where each of these rooms contains all necessary A/V and computer equipment to aid in electronic instruction. If additional space is needed, the faculty in the NDSS program will have access to the College of Health & Human Services building. This 161,000 ft² facility contains 4 floors of offices, over 40 classrooms, four Skills Laboratories, 10 conference rooms, one computer laboratory and 3 computer classrooms. All classrooms, conference rooms and laboratories are equipped with mounted LCD projectors, instructor computers, DVD, VCR, and control system for greater ease of use. In the future, some of the classrooms will be able to offer asynchronous learning opportunities. All of the instructional equipment housed in these classrooms is supported locally through the Office of Health Informatics in the College, as well as through central Information Technology Services on campus.

The UNC Hospitals classroom is a 33-seat, state of the art video conferencing center with individual Internet hookups at the seats.

Laboratory and practicum space:

UNC Hospitals Clinical Neurophysiology Laboratory:

The Clinical Neurophysiology Laboratory performs electroencephalograms, electromyelograms, nerve conduction velocities, autonomic testing and sensory evoked potentials, which are essential to the diagnosis and monitoring of patients with illnesses involving the central and peripheral nervous systems. These studies are performed to diagnose neurological abnormalities, classify epilepsies, quantify efficacy of treatment and localize areas of neurologic disease. Highly trained staff evaluates the effects of anticonvulsant drug therapies, non-invasive monitoring and potential surgical approaches to neurologic diseases.

UNC Hospitals Sleep Center: The Sleep Studies Program and the Sleep Studies Laboratory provide extensive testing to identify the presence of sleep disturbances and to determine therapeutic solutions to these problems. Procedures include polysomnography, positive airway pressure, sleep apnea assessment, multiple sleep latency tests and other sleep studies. Diagnostic procedures are performed on both inpatients and outpatients, and the multidisciplinary sleep clinic is used to screen and evaluate sleep complaints.

B. Describe the effect of this new program on existing facilities and indicate whether they will be adequate, both at the commencement of the program and during the next decade.

Due to the program being distance education, classroom use will be at a minimum and we do not anticipate any problems finding space for NDSS students. The proposed program is not expected to cause any adverse effects on the UNC Hospitals laboratories. UNC Charlotte and UNC Hospitals laboratories are expected to be adequate into the next decade.
C. Discuss any information technology services needed and/or available.

It is not anticipated additional support services will be needed for the proposed program.

The classrooms are equipped with “smart technology” where each of these rooms contains all necessary A/V and computer equipment to aid in electronic instruction. If additional space is needed, the faculty in the NDSS program will have access to the College of Health & Human Services building. This 161,000 ft² facility contains 4 floors of offices, over 40 classrooms, four Skills Laboratories, 10 conference rooms, one computer laboratory and 3 computer classrooms. All classrooms, conference rooms and laboratories are equipped with mounted LCD projectors, instructor computers, DVD, VCR, and control system for greater ease of use. In the future, some of the classrooms will be able to offer asynchronous learning opportunities. All of the instructional equipment housed in these classrooms is supported locally through the Office of Health Informatics in the College, as well as through central Information Technology Services on campus.

The UNC Chapel Hill School of Medicine’s Office of Information Services (OIS) maintains the web servers and supports the information technology needs of faculty and support staff in the Department of Allied Health Sciences. Students receive 24/7 support from the UNC Chapel Hill Information Technology Services via help line and have access to a variety of resources that support distance education. The UNC Hospitals Clinical Neurophysiology Laboratory, Sleep Disorders Center, and video conferencing center utilize the hospital’s Information Services Department, which is located onsite with 24/7 on-call services.

Faculty will not need any additional equipment for computer usage above and beyond what is provided for them when they are hired. Additionally, all students enrolled in the NDSS program will have full access to the new, state-of-the-art computer lab located in the College of Health and Human Services building. This lab is equipped with nearly 125 PC workstations. Also, as previously mentioned, each of the classrooms is equipped with recent PCs to support multimedia instruction.

There are no additional specific needs for A/V support from Media Services for this program. All of the A/V needs for the program can be handled through the equipment that currently exists in the Department and in the College.

D. Discuss sources of financial support for any new facilities and equipment.

It is not anticipated additional support services will be needed for the proposed program.

VII. ADMINISTRATION

Describe how the proposed program will be administered, giving the responsibilities of each department, division, school, or college. Explain any inter-departmental or inter-unit administrative plans. Include an organizational chart showing the “location” of the proposed new program.

The Department of Kinesiology will administer the proposed program. Administrative responsibilities will include admission, advising, and registration. The Department will
collect application information and communicate with applicants regarding the status of their application as well as course registration and clearance for graduation. Faculty for the proposed program will provide academic advising to students.

Students in the proposed program will adhere to all departmental policies and will have the same rights of appeal or grievance as current students majoring in all undergraduate programs in Kinesiology.

An organizational chart of the Department of Kinesiology showing the “location” of the proposed program is attached.

VIII. ACCREDITATION
Indicate the names of all accrediting agencies normally concerned with programs similar to the one proposed. Describe plans to request professional accreditation. If the proposed new degree program is at a more advanced level than those previously authorized or if it is in a new discipline division, was SACS notified of a potential "substantive change" during the planning process? If so, describe the response from SACS and the steps that have been taken to date with reference to the applicable procedure.

The Commission on Accreditation of Allied Health Education Programs (CAAHEP) is the accrediting agency normally associated with allied health educational programs. CAAHEP is the largest national accreditor of programs in health sciences and is recognized by the Council for Higher Education Accreditation (CHEA). At this time, CAAHEP accreditation is only appropriate for associate level programs; therefore no current plans exist to seek CAAHEP accreditation for the proposed NDSS program.

SUPPORTING FIELDS
Are other subject-matter fields at the proposing institution necessary or valuable in support of the proposed program? Is there needed improvement or expansion of these fields? To what extent will such improvement or expansion be necessary for the proposed program?

We do not anticipate the proposed program to require institutional improvement or expansion. The UNC Hospitals Sleep Center and Clinical Neurophysiology Laboratory will provide support for the proposed program in the form of clinical education and laboratory and classroom space for students. The center and laboratory are expanding as the need for their services increases.

IX. ADDITIONAL INFORMATION
Include any additional information deemed pertinent to the review of this new degree program proposal.

X. BUDGET
Provide estimates (using the attached form) of the additional costs required to implement the program and identify the proposed sources of the additional required funds. Use SCH projections (section II.C.) to estimate new state appropriations through enrollment increase funds. Prepare a budget schedule for each of the first four years of the program, indicating the account number and name for all additional amounts required. Identify EPA and SPA positions immediately below the account listing. New SPA positions should be listed at the first step in the salary range using the SPA classification rates currently in effect. Identify any larger or specialized equipment and any unusual supplies requirements.
For the purposes of the second and third year estimates, project faculty and SPA position rates and fringe benefits rates at first year levels. *Include the continuation of previous year(s) costs in second and third year estimates.*

Additional state-appropriated funds for new programs may be limited and in recent years have been almost non-existent. Except in exceptional circumstances, institutions should request such funds for no more than three years (e.g., for start-up equipment, new faculty positions, etc.), at which time enrollment increase funds should be adequate to support the new program. Therefore it will be assumed that requests (in the "New Allocations" column of the following worksheet) are for one, two, or three years unless the institution indicates a continuing need and attaches a compelling justification. However, funds for new programs are more likely to be allocated for limited periods of time if available at all.

Please see appendices for summary of estimated additional costs for the first years of the proposed program.

XI. **EVALUATION PLANS**

All new degree program proposals must include an evaluation plan which includes: (a) the criteria to be used to evaluate the quality and effectiveness of the program, (b) measures to be used to evaluate the program, (c) expected levels of productivity of the proposed program for the first four years of operation (number of graduates), (d) the names, addresses, e-mail addresses, and telephone numbers of at least three persons (six reviewers are needed for graduate programs) qualified to review this proposal and to evaluate the program once operational, and (e) the plan and schedule to evaluate the proposed new degree program prior to the completion of its fifth year of operation once fully established.

**PROGRAM EVALUATION FORMAT**

A. Criteria to be used to evaluate the proposed program:

Quality and effectiveness of the program are assessed by:

1. Program personnel (advisory committee, medical director, program faculty, others actively involved in the program)
2. Student satisfaction
3. Graduate satisfaction
4. Employer satisfaction
5. Appropriateness and effectiveness of externship facilities
6. Student pass rate in national examinations
7. Students gaining and maintaining employment in the field and or advancing education

B. Measures to be used to evaluate the program:

Surveys are designed to measure the programs appropriateness and effectiveness in the cognitive, affective, and psychomotor domains. Description and distribution dates of measurements are as follows:

1. Program Personnel Survey – Completed annually by advisory committee, medical director, program faculty, and others actively
involved in the program. Survey goal is to identify strengths and/or weaknesses in the NDSS program’s resources.

2. Graduate Satisfaction Survey – Completed by recent graduates of the NDSS program. Survey is given yearly and no less than three months after a student completes the program. Survey goal is to assess NDSS graduates on how well the program prepared them for gainful employment.

3. Employer Survey – Completed by recent graduates’ employers. Survey is given six months after the graduate gains and maintains employment. Survey goal is to assess NDSS graduate employers on how well the program prepared the graduate for employment at the employer’s facility.

4. Student Satisfaction Survey – Completed by current NDSS program students. Survey is given every semester in every NDSS course. Survey goal is to assess current students to determine strengths and/or weaknesses in the program’s resources and instruction.

5. Student Externship Survey – Completed by students at the end of their clinical rotation. Survey is conducted during every semester clinical is offered and one survey is completed for each clinical site attended. Survey goal is to assess the quality and effectiveness of the NDSS program’s clinical affiliates.

6. Student records – The program director demonstrates sufficient effort to maintain contact with graduates and documents employment history, advanced education enrollment and completion, and registry examination completion.

Measurement of all program outcomes is ongoing with the following format for reporting:

- Purpose statement
- Measurement system
- Dates of measurement
- Results
- Analyses
- Action plans
- Follow-up

The NDSS academic advisory committee will meet each year to review the evaluations. Revisions are made as needed.

C. Projected productivity levels (number of graduates):

<table>
<thead>
<tr>
<th>Level</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
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<tbody>
<tr>
<td>B</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
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<tr>
<td>M</td>
<td>_______</td>
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<tr>
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<tr>
<td>D</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
</tbody>
</table>

(Key: B-Bachelor’s, M-Master’s, I/P-Intermediate or Professional, D-Doctoral)
D. Recommended consultant/reviewers: Names, titles, addresses, e-mail addresses, and telephone numbers. May not be employees of the University of North Carolina.

Ms. Karen Rowe, BS, RPSGT
Polysomnography Program Director/Instructor
Lenoir Community College
PO Box 188
231 Hwy. 58 South
Kinston, NC 28502-0188
Phone: 252-527-6223 ex. 347
karenmonarchy@suddenlink.net

Debra Jester Carson, Ed.D., R.EEG/EP T.
Program Chair, Electroneurodiagnostic Technology
Health and Public Safety
3520 Central Parkway
Cincinnati, Ohio 45223-2690
Phone: 513-569-1283
Fax: 513-569-1659
debcarson@cinci.rr.com

Ms. Maureen Bendyna, R.EEG/EP T., RPSGT, CNIM
Program Director Neurodiagnostic Technology
Harcum College
Bryn Mawr, PA 19013
Phone: 610-526-6174
mbendyna@harcum.edu

Mr. Jimmy Singleton, BS, RPSGT
Atlantic Sleep Center
Facility Director
2861 Trent Road
New Bern, NC 28562
Phone: 252-633-0251
jsingleton@atlanticsleepcenter.com

John Manning, RPSGT
Area Operations Manager
Sleep Services of America
3622 Lyckan Parkway, Suite 5003
Durham, NC 27707
Office: 919-403-1615
Cell: 919-491-6168
jmanning.ncast@gmail.com

E. Plan for evaluation prior to fifth operational year.

Allied health educational programs require rigorous ongoing evaluation to ensure their quality and effectiveness. This ongoing evaluation culminates in a yearly report prepared by the program director. The report contains a summary and quantitative analysis of the measurements completed in item B. The yearly report is presented to the program's evaluation committee. The evaluation committee will assess the appropriateness and effectiveness of the program. The program director will devise and implement action plans for any deficiencies in the program found by the committee.
XII. REPORTING REQUIREMENTS

Institutions will be expected to report on program productivity after one year and three years of operation. This information will be solicited as a part of the biennial long-range planning revision.

Proposed date of initiation of proposed degree program: August 2011

This proposal to establish a new degree program has been reviewed and approved by the appropriate campus committees and authorities.

Chancellor: [Signature]

References:

Personal Information:

- Mary Ellen Wells
- 48 Margaret Place, Chapel Hill, NC 27516
- 252-561-7751 (mobile) 919-843-4673 (office)
- mwells@med.unc.edu

Education:

- Currently enrolled and working toward PhD, Curriculum and Instruction, North Carolina State University, Raleigh, NC
- MS Instructional Technology, East Carolina University, Greenville, NC 2004
- BS Computer Science, East Carolina University, Greenville, NC 2001
- AAS Electroneurodiagnostic Technology with add-on Polysomnography, Pamlico Community College, Grantsboro, NC 2008

Professional Experience:

- Clinical Assistant Professor/Program Director, 2008 - present, The University of North Carolina at Chapel Hill, Department of Allied Health Sciences, Chapel Hill, NC
- Neurodiagnostic Technologist, 2010 – present, The University of North Carolina Hospitals, Clinical Neurophysiology Laboratory, Chapel Hill, NC
- Electroneurodiagnostic Technology Program Director, 2006 – 2008, Pamlico Community College, Grantsboro, NC
- Adjunct Instructor, 2003 – 2008, Pitt Community College, Greenville, NC
- Technologist, 1999 – 2006, Carolina Neurology & Electromyography, Greenville, NC

Accreditations:

- Board of Registered Polysomnographic Technologists (BRPT), #13602, 2009
- American Board of Registration of Electroencephalographic and Evoked Potential Technologists (ABRET), #3697, 2004
- American Association of Electroneurodiagnostic Technologists (AAET), #477, 2002

Memberships:

- North Carolina Association of Sleep Technologists (NCAST)
- American Society of Electroneurodiagnostic Technologists (ASET)
Department of Allied Health Sciences

- American Association of Sleep Technologists (AAST)
- Southern Society of Electroneurodiagnostic Technologists (SSET)

Bibliography:

- Taking Sleep to a New Level – The Profession of Neurodiagnostics and Sleep Science, Celebrating Allied Health Professions Appreciation Week, Council for Allied Health in North Carolina, 4 page article, 2008
- Reviewer for North Carolina Health Careers handbook, North Carolina Area Health Education Centers Program (AHEC), 2006

Teaching record:

Courses taught for NCCCS
- EDT 110 Neuroscience/Pathological Conditions
- EDT 111 Laboratory Management
- EDT 112 Instrument/Record Methods
- EDT 113 Clinical Correlates
- EDT 114 Special Procedures
- EDT 115 Laboratory Practice
- EDT 116 Clinical Experience
- EDT 118 Laboratory Practice II
- OST 149 Medical Legal Issues
- MED 118 Medical Law and Ethics
- CIS 110 - Introduction to Computers
- ACA 111 – College Student Success
- CIS 172 - Introduction to the Internet
- MAT 60 and 80 – Remedial Algebra

Lab Mentorships and Continuing Education Lecture
- ABRET Registry exam preparation, Pamlico Community College

Student Preceptorships 2007
- Electroencephalography
- Evoked potential testing
- Nerve conduction velocity testing
- Patient assessment

Grants:
Department of Allied Health Sciences

- Principle Investigator, American Society of Electroneurodiagnostic Technologists Foundation Grant, 2010-2011, 95% effort, $5,000.00

Awards:

Allen DeVilbiss Literary Award presented by the American Association of Sleep Technologists at the 2010 Annual Meeting of the Associated Professional Sleep Societies in San Antonio TX. This award is in recognition of an original article published in A2Zzz deemed to represent excellence in technical literary writing by a sleep technologist.

Professional Service:

- Committee on Accreditation for Education in Electroneurodiagnostic Technology (CoA-END) committee member, appointed 2009 - present
- American Council on Education evaluator, Military Program Evaluations, Portsmouth Virginia Electroneurodiagnostic Technology with Add-on Polysomnography Program, 2009-2010
- Invited member 2009 – present, Polysomnography Technology Program Academic Advisory Committee, Lenoir Community College, Kinston, NC
- Invited taskforce member, 2008-present, American Association of Electroneurodiagnostic Technologists, Bachelor’s Degree Taskforce
- Initiator and maintainer, CAAHEP accreditation of Electroneurodiagnostic Technology with add-on Polysomnography at Pamlico Community College, 2007 - 2008
- Invited member 2006 - present, Health Services Management Academic Advisory Committee, East Carolina University, Greenville, NC
- Institutional Effectiveness Committee member, 2007 – 2008, Pamlico Community College, Grantsboro, NC
- Public Relations Committee member, 2007, Pamlico Community College, Grantsboro, NC

Presentations:

- Polysomnography Instrumentation. UNC Hospitals Sleep Disorders Center. April 15th 2011.
- Reaching High in Sleep Medicine Education. North Carolina Association of Sleep Technologists Annual Meeting. Nov. 13th 2010
Department of Allied Health Sciences

- A Sleep Technologists Guide to Epilepsy. Eastern Area Health Education Center. Feb. 26th 2010. 1pm-5pm.
- Electroneurodiagnostic Technology and Polysomnography demonstration for the North Carolina legislators at the Raleigh legislative building, 2007

Reflective Statement:

I have worked as a technologist in the field of neurodiagnostics and sleep science since 1999. After completing my BS degree in 2001, I began pursuing my MS degree and became deeply involved in designing instruction at the college level. Distance education is a passion of mine and I created the first accredited DE associate degree in electrophysiologic technology/polysomnography in our nation. I worked as a faculty member at Pitt Community College and as a program director at Pamlico Community College.

My research/scholarly interests include clinical education competencies, educational leadership, distance education, advanced didactic and laboratory competencies in neurodiagnostics and sleep science, educational assessments and outcomes, community awareness of neurological and sleep disorders and patient advocacy.

Program accreditation is a major part of my responsibility. I initiated accreditation by the Committee on Accreditation of Allied Health Education Programs (CAAHEP) for an Electroneurodiagnostic Technology with add-on Polysomnography program. My program received accreditation by CAAHEP approximately six months later – the first in our state and the 12th in the nation to receive the accreditation. To ensure the best education for my students, I maintain equipment featuring the latest in technology for the field. This is achieved by soliciting funds for new equipment and acquiring donor/loaner equipment from leading manufacturers. I also follow SACS requirements and adhere to the guidelines set forth by UNC, ASET, CAAHEP, BRPT, ABRET, ACNS, and the AASM as well as participate in continuing clinical and professional education.
Currently, I am working towards creating a baccalaureate of science degree in neurodiagnostics and sleep science for which I will be the first director. This program is a collaboration between the UNC Department of Allied Health Sciences at The University of North Carolina at Chapel Hill and The University of North Carolina at Charlotte. This proposed program will be the first in our state, nation, and the world. A major goal of my endeavors for the new program is to create a national model for future BS degrees in neurodiagnostics and sleep science.
CURRICULUM VITAE

Joseph Paul Coyle, M.D.

Anesthesiologist and Critical Care Physician
Southeast Anesthesiology Consultants, P.A.
Carolinas Medical Center, Charlotte, North Carolina

Home Address: 7620 Turnberry Lane
Stanley, North Carolina 28164
Phone: (704) 892-5692

Hospital Address: Department of Anesthesiology
Carolinas Medical Center
P.O. Box 32861
Charlotte, NC 28232
Phone: (704) 355-2000 (Paging)
(704) 355-2372 (Office)

Personal Data: Born - June 17, 1952; Bethesda, Maryland
Married - 1972 - Patricia Linn Coyle
Children: Michael 1974
          Kathleen 1977
          David 1979

Education: Medical School - Hahnemann Medical College, Philadelphia, PA
1974-1978: Doctor of Medicine, Alpha Omega Alpha (President)
Medical Internship - Bethesda Naval Hospital, Bethesda, Md
1978-1979
Residency in Anesthesiology - Bethesda Naval Hospital
1979-1981
Fellowship in Critical Care Medicine
July 1981-June 1982
Harvard Medical College
Massachusetts General Hospital, Boston, Ma
Fellowship in Cardiothoracic Anesthesiology
July 1982-June 1983
Harvard Medical College
Massachusetts General Hospital, Boston, Ma

Certification: National Board of Medical Examiners #220870 1979
American Board of Anesthesiology #10505 1982
Recertification ABA 2002
Critical Care Medicine #39 1986
Examiner, American Board of Anesthesiology 1994 - 2008
Advanced Trauma Life Support 2006

License:
North Carolina #29831 1986
Virginia #0101242628 2007

Society Memberships:
American Medical Association
American Society of Anesthesiology
North Carolina Society of Anesthesiologists
Society of Cardiovascular Anesthesiologists
International Anesthesia Research Society
Society of Critical Care Medicine
Fellow of the American College of Chest Physicians

Professional Appointments and Positions:

North Carolina Respiratory Care Board
Chairman 2010 - present

Commission on Accreditation of Respiratory Care, CoARC
Commissioner: 2009 - present

University of North Carolina, Charlotte
Lecturer in the Department of Kinesiology August 15, 2008 - Present

North Carolina Respiratory Care Board 2001-2008
Vice Chairman 2001-2002
Chairman 2002-2008

Carolinas Medical Center,
Department of Anesthesiology
P.O. Box 32861
Charlotte, North Carolina 28232
Staff Anesthesiologist and Critical Care Physician 1990-Present
CQI Committee, Department of Anesthesiology 1990-2001
Chief, Cardiac Anesthesia 1991-2006
Director, Cardiovascular Recovery Unit 1991-2004
Medical Director, CQI/QA
Department of Anesthesiology 1996-2001
Vice-Chief, Department of Anesthesiology 1995-2002
Medical Director, Respiratory Care 1996-Aug 1, 2008
Cleveland Clinic Foundation,  
Department of Cardiothoracic Anesthesiology  
9500 Euclid Ave., Cleveland, Ohio 44195  

June 1988 - April 1990

Staff Anesthesiologist and Critical Care Physician 1988-1990  
Division Committee 1989-1990  
Director, CT Anesthesia Fellowship 1989-1990  
Director, Critical Care Fellowship 1989-1990  

Bethesda Naval Hospital,  
8901 Wisconsin Avenue, Bethesda, Maryland 20814  

July 1983 - June 1988

Staff Anesthesiologist and Critical Care Physician 1983-1988  
Assistant Professor of Anesthesiology and Medicine  
Uniformed Services Univ. Of Health Sciences 1983-1988  
Director of Cardiac Anesthesia 1983-1986  
Assistant Head, Critical Care Medicine 1984-1987  
Director of the Recovery Room 1987-1988  
Director of Quality Assurance, Critical Care 1984-1988  
Chairman of Hospital CPR Committee 1987-1988  

Military Service:
Commissioned, Ensign, Medical Corps, U.S.N.R. 1975  
Meritorious Unit Commendation 1985  
Deployment in support of the Grenada Invasion  
Letter of Commendation 1985  
Perioperative Care of President Ronald Reagan 1987  
Letter of Commendation 1987  
Perioperative Care of First Lady Nancy Reagan  
Honorable Discharge, Commander (Select), M.C.,  
U.S.N.R. 1988  

Awards:
Best Doctors List 2003 – 2009  
Undergraduate Teaching Award:  
UNCC, College of Health & Human Services 2009  
NCSRC Physician of the Year 2006
Publications:


Published Abstracts:


## Projected Funding for New Degree Program

### Bachelor of Science in Neurodiagnostics and Sleep Science

**Regular Term 2011-12**

*(Based on 2010-2011 Change in Student Credit Hours)*

<table>
<thead>
<tr>
<th>Program Category</th>
<th>Undergrad</th>
<th>Masters</th>
<th>Doctoral</th>
<th>Undergrad</th>
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### Budget Breakdown

**Total Positions Required**

0.000

**Instructional - Position Salary Rate**

$80,189

101-1310

**Instructional Salary Amount**

$0

**Other Academic Costs**

44.89300%

0

**Purpose 101**

**Total Academic Requirements**

$0

**Purpose 151**

Library

11.48462%

0

**Purpose 152, 160, 170 180**

General Instit Support

54.04980%

0

Neg Adj Factor

50.00000%

n/a

In-state SCHs

0

Financial Aid (in-state)

67.99800%

0

**Total Requirements**

$0

---

Fringe rates for staff

- FICA @ 7.65%
- Retirement @ 8.75%
- Medical @ $4,527

Fringes for faculty salaries

- FICA @ 7.65%
- Retirement @ 11.86%
- Medical @ $4,527

$0

$0

$0

---

Request for Permission to Establish Budget-rev.xlsx/Yr0 EI Funds
<table>
<thead>
<tr>
<th>Institution</th>
<th>Date</th>
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<tr>
<td>Program (API#, Name, Level)</td>
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<tr>
<td>Degree(s) to be Granted</td>
<td>Program Year</td>
<td>2011-12</td>
</tr>
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</table>

**SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Date</th>
<th>6/3/2011</th>
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<tbody>
<tr>
<td>UNC Charlotte</td>
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<td>July 7, 2010</td>
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</table>

**51.0999 Neurodiagnostics and Sleep Science**

| Program Year | 2011-12 |

| Program | Degree(s) to be Granted | BS |

**ADDITIONAL FUNDING REQUIRED - BY SOURCE**

<table>
<thead>
<tr>
<th>Reallocation of Present Institutional Resources</th>
<th>Enrollment Increase Funds</th>
<th>Federal/State or Other Non-state Funds (Identify)</th>
<th>Donor Education Funds</th>
<th>New Allocations</th>
<th>Total</th>
</tr>
</thead>
</table>

| 101 Regular Term Instruction | $0 | $17,856 | $17,856 |

| 1110 EPA Non-teaching Salaries | $0 |
| 1310 EPA Academic Salaries | 0 | 0 | 0 | 112,500 | 112,500 |

| Coordinator Stipend | Graduate Teaching Assistants |

| 1810 Social Security | $8,442 | 8,442 |
| 1820 State Retirement | $10,207 | 10,207 |
| 1830 Medical Insurance (3432*X) | $8,315 | 8,315 |

| 2000 Supplies and Materials | $4,500 | 4,500 |
| 2600 Office Supplies | $4,500 | 4,500 |
| 3000 Current Services | $10,500 | 10,500 |
| 4000 Fixed Charges | $0 |
| 5000 Capital Outlay (Equipment) | $0 |
| 5100 Office Equipment | $0 |
| 5200 EDP Equipment | $0 |

**TOTAL Regular Term Instruction**

| $4,500 | $0 | $0 | $167,820 | $0 | $172,320 |

| 151 Libraries | $0 | $0 | $0 | $2,000 | $0 | $0 |

| 5000 Capital Outlay (Equipment) | $0 | $0 |
| 5600 Library Book/Journal | $0 |

**TOTAL Libraries**

| $0 | $0 | $0 | $2,000 | $0 | $0 |

| 189 General Institutional Support | $0 | $0 | $0 | $0 | $0 | $0 |

| 2000 Supplies and Materials | $0 |
| 2600 Office Supplies | $0 |
| 3000 Current Services | $0 |
| 3200 Communications | $0 |
| 3400 Printing & Binding | $0 |
| 5000 Capital Outlay (Equipment) | $0 |
| 5100 Office Equipment | $0 |
| 5200 EDP Equipment | $0 |

**TOTAL General Inst. Support**

| $0 | $0 | $0 | $169,820 | $0 | $172,320 |

**TOTAL ADDITIONAL COSTS**

| $4,500 | $0 | $0 | $169,820 | $0 | $172,320 |

**NOTE:** Accounts may be added or deleted as required.
Projected Funding for New Degree Program  
Bachelor of Science in Neurodiagnostics and Sleep Science  
Regular Term 2012-13  
(Based on 2011-2012 Change in Student Credit Hours)

<table>
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<tr>
<th>Program Category</th>
<th>Change in Student Credit Hours</th>
<th>Instructional - Position Funding Factors</th>
<th>Instructional Positions Required</th>
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<td></td>
<td>Undergrad</td>
<td>Masters</td>
<td>Doctoral</td>
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<td>Category I</td>
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<td>Category IV</td>
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* No change in overall credit hours due to the presence of students in the Health Information Technology certificate program.

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<td></td>
<td>Instructional - Position Salary Rate</td>
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<tr>
<td></td>
<td>Instructional Salary Amount</td>
<td>$36,514</td>
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<td></td>
<td>Other Academic Costs</td>
<td>44.89300%</td>
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<tr>
<td>Purpose 101</td>
<td>Total Academic Requirements</td>
<td>$52,906</td>
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<td>Purpose 151</td>
<td>Library</td>
<td>11.48462%</td>
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<td>Purposes 152, 160, 170, 180</td>
<td>General Instit Support</td>
<td>54.04980%</td>
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<td>Neg Adj Factor</td>
<td>50.00000%</td>
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<td></td>
<td>In-state SCHs</td>
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<tr>
<td></td>
<td>Financial Aid (in-state)</td>
<td>67.99800%</td>
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<td>Total Requirements</td>
<td>$87,578</td>
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Fringe rates for staff
- FICA @ 7.65%
- Retirement @ 8.75%
- Medical @ $4,527

Fringes for faculty salaries
- FICA @ 7.65% $2,793
- Retirement @ 11.86% $4,331
- Medical @ $4,527 $2,061

$9,185
### SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

**Institution:** UNC Charlotte  
**Date:** May 31, 2011  
**Program (API#, Name, Level):**  
51.0999 Neurodiagnostics and Sleep Science  
**Degree(s) to be Granted:** BS  
**Program Year:** 2012-13  

#### ADDITIONAL FUNDING REQUIRED - BY SOURCE

<table>
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<tr>
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<th>Donor</th>
<th>New Allocations</th>
<th>Total</th>
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<tbody>
<tr>
<td>Present Institutional Resources</td>
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</tr>
<tr>
<td>101 Regular Term Instruction</td>
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<td></td>
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</tr>
<tr>
<td>1210 SPA Regular Salaries</td>
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<tr>
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<td>5200 EDP Equipment</td>
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<tr>
<td><strong>TOTAL Regular Term Instruction</strong></td>
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<tr>
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<tr>
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<td>$0 $87,578 $0 $0 $87,578</td>
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**NOTE:** Accounts may be added or deleted as required.
Projected Funding for New Degree Program
Bachelor of Science in Neurodiagnostics and Sleep Science
Regular Term 2013-2014
(Based on 2012-2013 Change in Student Credit Hours)

<table>
<thead>
<tr>
<th>Program Category</th>
<th>Change in Student Credit Hours</th>
<th>Instructional - Position Funding Factors</th>
<th>Instructional Positions Required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Undergrad</td>
<td>Masters</td>
<td>Doctoral</td>
</tr>
<tr>
<td>Category I</td>
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<tr>
<td>Category II</td>
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<table>
<thead>
<tr>
<th>Total Positions Required</th>
<th>1.354</th>
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<tr>
<td>Instructional - Position Salary Rate</td>
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</table>

<table>
<thead>
<tr>
<th>Purpose 101</th>
<th>Total Academic Requirements</th>
<th>$157,305</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional Salary Amount</td>
<td>$108,566</td>
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</tr>
<tr>
<td>Other Academic Costs</td>
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</table>

<table>
<thead>
<tr>
<th>Purpose 151</th>
<th>Library</th>
<th>11.48462%</th>
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<table>
<thead>
<tr>
<th>Purposes 152, 160, 170, 180</th>
<th>General Instit Support</th>
<th>54.04980%</th>
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<td>50.00000%</td>
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</table>

Fringe rates for staff
- FICA @ 7.65%
- Retirement @ 8.75%
- Medical @ $4,527

Fringes for faculty salaries
- FICA @ 7.65% | $8,305 |
- Retirement @ 11.86% | $12,876 |
- Medical @ $4,527 | $6,129 |

Total Fringes | $27,310 |

In-state SCHs | 0 |
Financial Aid (in-state) | 67.99800% | 0 |

Total Requirements | $260,394 |
### SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

<table>
<thead>
<tr>
<th>Institution</th>
<th>UNC Charlotte</th>
<th>Date</th>
<th>May 31, 2011</th>
<th>Program Year</th>
<th>2013-14</th>
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<tbody>
<tr>
<td>Program (API#, Name, Level)</td>
<td>51.0999 Neurodiagnostics and Sleep Science</td>
<td>BS</td>
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</table>

**ADDITIONAL FUNDING REQUIRED - BY SOURCE**

<table>
<thead>
<tr>
<th>Reallocation of</th>
<th>Enrollment Increase Funds</th>
<th>Federal/State or Other Non-state Funds (identify)</th>
<th>Donor Education Funds</th>
<th>New Allocations</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>Reallocation of Present Institutional Resources</td>
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<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>101 Regular Term Instruction</th>
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</thead>
<tbody>
<tr>
<td>1210 SPA Regular Salaries</td>
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<td></td>
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<td>$0</td>
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<tr>
<td>1110 EPA Non-teaching Salaries</td>
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<td></td>
<td>0</td>
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<tr>
<td>1310 EPA Academic Salaries</td>
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<td>108,566</td>
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<tr>
<td>1820 State Retirement</td>
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<tr>
<td>1830 Medical Insurance</td>
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<td>6,129</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2000 Supplies and Materials</td>
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<tr>
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</tr>
<tr>
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<td></td>
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<tr>
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<tr>
<td>5200 EDP Equipment</td>
<td>8,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL Regular Term Instruction**

| $0 | $157,305 | $0 | $0 | $0 | $157,305 |

<table>
<thead>
<tr>
<th>151 Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000 Capital Outlay (Equipment)</td>
</tr>
<tr>
<td>5600 Library Book/Journal</td>
</tr>
</tbody>
</table>

**TOTAL Libraries**

| $0 | $18,066 | $0 | $0 | $0 | $18,066 |

<table>
<thead>
<tr>
<th>189 General Institutional Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 Supplies and Materials</td>
</tr>
<tr>
<td>2600 Office Supplies</td>
</tr>
<tr>
<td>3000 Current Services</td>
</tr>
<tr>
<td>3200 Communications</td>
</tr>
<tr>
<td>3400 Printing &amp; Binding</td>
</tr>
<tr>
<td>5000 Capital Outlay (Equipment)</td>
</tr>
<tr>
<td>5100 Office Equipment</td>
</tr>
<tr>
<td>5200 EDP Equipment</td>
</tr>
</tbody>
</table>

**TOTAL General Inst. Support**

| $0 | $85,023 | $0 | $0 | $0 | $85,023 |

**TOTAL ADDITIONAL COSTS**

| $0 | $260,394 | $0 | $0 | $0 | $260,394 |

**NOTE:** Accounts may be added or deleted as required.
## Projected Funding for New Degree Program
### Bachelor of Science in Neurodiagnostics and Sleep Science
#### Regular Term 2014-2015
*(Based on 2013-2014 Change in Student Credit Hours)*

<table>
<thead>
<tr>
<th>Program Category</th>
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<th>Doctoral</th>
<th>Undergrad</th>
<th>Masters</th>
<th>Doctoral</th>
<th>Undergrad</th>
<th>Masters</th>
<th>Doctoral</th>
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</thead>
<tbody>
<tr>
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<td>115.56</td>
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### Change in Instructional - Position Funding Factors

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<th>Masters</th>
<th>Doctoral</th>
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<td>115.56</td>
<td>0.000</td>
<td>535.74</td>
<td>303.93</td>
<td>110.16</td>
<td>0.000</td>
<td>406.24</td>
<td>186.23</td>
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<td>1.034</td>
<td>232.25</td>
<td>90.17</td>
<td>80.91</td>
<td>0.000</td>
</tr>
</tbody>
</table>

### Total Positions Required

| Instructional Positions Required | 1.034 |

### Instructional - Position Salary Rate

| Instructional - Position Salary Rate | $80,189 |

### Instructional Salary Amount

| Instructional Salary Amount | $82,905 |

### Other Academic Costs

| Other Academic Costs | 44.89300% | $37,219 |

### Total Academic Requirements

| Total Academic Requirements | $120,124 |

### Fringe rates for staff

| FICA @ 7.65% | $6,342 |
| Retirement @ 8.75% | $9,833 |
| Medical @ $4,527 | $4,680 |

### Fringes for faculty salaries

| FICA @ 7.65% | $6,342 |
| Retirement @ 11.86% | $9,833 |
| Medical @ $4,527 | $4,680 |

### Total Requirements

| Total Requirements | $198,847 |
Institution: UNC Charlotte  
Program (API#, Name, Level): 51.0999 Neurodiagnostics and Sleep Science  
Degree(s) to be Granted: BS  
Program Year: 2014-15  
Date: May 31, 2011

### Summary of Estimated Additional Costs for Proposed Program/Track

| 101 Regular Term Instruction |  
|-----------------------------|---|---|---|---|---|
| 1210 SPA Regular Salaries   |  |  |  |  |  | $0 |
| 1110 EPA Non-teaching Salaries |  |  |  |  |  | 0 |
| 1310 EPA Academic Salaries  |  | 82,905 | 0 | 82,905 |
| 1810 Social Security        |  | 2,793 | 0 | 2,793 |
| 1820 State Retirement       |  | 9,833 | 0 | 9,833 |
| 1830 Medical Insurance      |  | 4,680 | 0 | 4,680 |
| 2000 Supplies and Materials |  | 3,500 |  | 3,500 |
| 3000 Current Services       |  | 11,913 |  | 11,913 |
| 5000 Capital Outlay (Equipment) |  | 4,500 |  | 4,500 |
| 5100 Office Equipment       |  | 500  |  | 500  |
| 5200 EDP Equipment          |  | 4,000 |  | 4,000 |
| **TOTAL Regular Term Instruction** |  | $0  | $120,124 | $0  | $0  | $0  | $120,124 |

| 151 Libraries |  
|---------------|---|---|---|---|---|
| 5000 Capital Outlay (Equipment) |  | 13,796 |  | 13,796 |
| 5600 Library Book/Journal   |  | 13,796 |  | 13,796 |
| **TOTAL Libraries** |  | $0  | $13,796 | $0  | $0  | $0  | $13,796 |

| 189 General Institutional Support |  
|-------------------------------|---|---|---|---|---|
| 2000 Supplies and Materials   |  | 21,600 |  | 21,600 |
| 2600 Office Supplies          |  | 21,600 |  | 21,600 |
| 3000 Current Services         |  | 21,600 |  | 21,600 |
| 3200 Communications           |  | 10,800 |  | 10,800 |
| 3400 Printing & Binding       |  | 10,800 |  | 10,800 |
| 5000 Capital Outlay (Equipment) |  | 21,727 |  | 21,727 |
| 5100 Office Equipment         |  | 10,900 |  | 10,900 |
| 5200 EDP Equipment            |  | 10,827 |  | 10,827 |
| **TOTAL General Inst. Support** |  | $0  | $64,927 | $0  | $0  | $0  | $64,927 |

**TOTAL ADDITIONAL COSTS**  
$0  $198,847  $0  $0  $0  $198,847

**NOTE:** Accounts may be added or deleted as required.
NORTH CAROLINA COMMUNITY COLLEGE SYSTEM

June 3, 2010

R. Scott Ralls, Ph.D.
PRESIDENT

Dr. Mitchell L. Cordova, Professor and Chair
Department of Kinesiology
University of North Carolina Charlotte
9201 University City Boulevard
Charlotte, North Carolina 28223

Dear Dr. Cordova:

I am pleased to write a letter of support for the Neurodiagnostics and Sleep Technology baccalaureate program at the University of North Carolina at Charlotte.

This program will offer a pathway for our graduates in Polysomnography and Electroneurodiagnostic Technology to further their education and obtain their baccalaureate. In addition, it will assist us in the recruitment of qualified Polysomnography and Electroneurodiagnostic Technology faculty for our colleges.

I am pleased on behalf of the North Carolina Community College System to support the establishment of this new program in the Department of Kinesiology.

With kindest regards, I am

Sincerely,

R. Scott Ralls

cc: Ms. Mary Ellen Wells
Mr. Kenneth Briggs
Dr. Sharon H. Morrissey
Dr. Judith C. Mann
Ms. Renee Batts
May 26, 2010

Mitchell L. Cordova  
Professor and Chairperson Department of Kinesiology  
The University of North Carolina at Charlotte  
9201 University City Blvd.  
Charlotte, NC 28223

Dear Dr. Cordova:

The University of North Carolina (UNC) Hospitals is in support of the Neurodiagnostics and Sleep Science (NDSS) baccalaureate program being proposed at the University of North Carolina at Charlotte and in collaboration with the University of North Carolina at Chapel Hill. Upon request by the NDSS program once the degree program is established we will initiate a student contract between the program and UNC Hospitals Clinical Neurophysiology Labs and Sleep Disorders Center and providing that all criteria is met than UNC Hospitals is willing to provide clinical instruction in its Clinical Neurophysiology Laboratory and Sleep Disorders Center according to the current plan of study of the NDSS program at The University of North Carolina at Charlotte.

Please do not hesitate to call if you have any questions or concerns.

Sincerely,

Kyle K. Kalkowski  
Director  
Clinical Neurophysiology Labs  
UNC Hospitals  
Chapel Hill, NC 27514  
(919) 966-1686

University of North Carolina Sleep Disorders Center  
The University of North Carolina Hospitals, 101 Manning Drive, Chapel Hill, North Carolina 27514  
Telephone 919-966-3294, Fax 919-966-6976
October 6, 2010

Dr. Joan Lorden
Provost and Vice Chancellor for Academic Affairs
The University of North Carolina at Charlotte
Denny 118
9201 University City Boulevard
Charlotte, NC 28223-0001

Dear Joan:

I am pleased to enclose a partially executed Memorandum of Understanding between The University of North Carolina at Chapel Hill’s Department of Allied Health Sciences and The University of North Carolina at Charlotte’s Department of Kinesiology. This partnership between our School of Medicine and your College of Health and Human Services will deliver specialized, on-line curricula to advanced practice professionals in the field of neurodiagnostics and sleep science.

Joan, this new baccalaureate degree is an excellent example of inter-institutional collaboration and vision, and I appreciate the oversight you provided on behalf of your campus. I look forward to receiving a copy of the fully-executed agreement once you have obtained all the required signatures.

Sincerely,

Bruce W. Carney
Executive Vice Chancellor and Provost

BWC:st
copy: Chancellor Holden Thorp
Dean Bill Roper
Dr. Lee McLean
MEMORANDUM OF UNDERSTANDING

BETWEEN

The University of North Carolina at Chapel Hill, School of Medicine, Department of Allied Health Sciences

AND

The University of North Carolina at Charlotte, College of Health & Human Services, Department of Kinesiology

I. PURPOSE

The purpose of this Memorandum of Understanding is to define the working relationship between The University of North Carolina at Chapel Hill, School of Medicine, Department of Allied Health Sciences (DAHS) and The University of North Carolina at Charlotte, College of Health & Human Services, Department of Kinesiology (CHHS). This agreement will clarify the collaborative roles and responsibilities of the two institutions with respect to the establishment and delivery of an on-line Bachelors Degree in Neurodiagnostics and Sleep Science (NDSS).

DAHS has developed a specialized curricular content for a new baccalaureate degree to prepare advanced practice professionals in the field of Neurodiagnostics and Sleep Science (NDSS). The need for this new degree and level of preparation has become apparent over the past several years and is well documented in an initial “Intent to Plan” proposal prepared by the DAHS faculty. Ideally, this content would be offered in the form of a primarily on-line, post-professional degree for currently registered sleep technologists and neurodiagnostic technologists who already have their AS or AAS degrees (preferably earned from one of the NC Community College END or PSG programs.) CHHS has been successful in designing and delivering a very parallel, post-professional baccalaureate degree for practicing respiratory care professionals in North Carolina.

Our mutual goal is to establish a collaborative partnership through which CHHS will sponsor this new degree and offer approximately four of the required upper division undergraduate courses. DAHS will deliver and be responsible for approximately eight of the specialized neurodiagnostics and sleep science courses. DAHS’s responsibility includes course management, content evaluation, and course revision.

II. LEGAL STATUS

All of the provisions of this MOU and any addenda are subject to mutual agreement of the parties, to the availability of appropriate funding at each institution, to review by the Office of University Counsel and approval by the Provost at each participating campus, and to review and approval by the UNC General Administration. This MOU will remain in effect until terminated or amended by mutual consent. Both parties to this MOU have the right to terminate this MOU by informing the partner in writing six months prior to the desired termination date.
III. TERM OF THIS MEMORANDUM

The effective date of this memorandum shall be the date of execution and it shall continue in effect until terminated by either party or modified by written amendment executed by both parties.

IV. ROLES AND RESPONSIBILITIES

A. The DAHS will:

1. Provide CHHS with access to editable versions of documents prepared by their faculty that are needed for the establishment of a new NDSS degree program in the UNC system (i.e., Intent to Plan and Request to Establish).

2. Provide assistance if requested to faculty at CHHS in the final preparation and submission of these forms on behalf of UNC-Charlotte

3. Advertise and recruit students for this new degree program at UNC-Charlotte

4. Provide the full time services of a DAHS faculty member qualified in NDSS, Mary Ellen Wells (or should she be or become unavailable, of a substitute NDSS faculty member reasonably acceptable to CHHS), who will assume responsibility for overall program coordination, NDSS specialty course development and delivery, assisting with applicant screening, making admission recommendations, submitting student grades in a timely manner, and related teaching and program administrative duties as may be agreed through further addenda to this MOU.

5. Disseminate information about this collaborative degree program throughout the UNC system and the relevant professional community, and list the program on its own website, noting the contributions of each partner institution.

6. Submit needed documentation to allow students in the NDSS program to access needed specialty content through the UNC Chapel Hill Health Sciences Library

7. Provide access to the facility and faculty resources of the UNC Hospitals Sleep Disorders Center and UNC Clinical Neurophysiology Laboratory, including the services of the Medical Director of this program (Dr. Bradley Vaughn), as described in the curriculum plan for this degree.

B. The NDSS specialty courses will be cross listed at UNC-CH

C. DAHS will be responsible for the course material content and quality assurance for the specialty courses.

D. The CHHS will:

1. Submit the Intent to Plan and Request to Establish documents in accordance with the policies and timelines established for UNC-Charlotte and the UNC General Administration.

2. Assist with the process of securing approval and listing of new NDSS courses by the Registrar at UNC-Charlotte; and securing an appropriate adjunct or joint appointment for Mary Ellen Wells (or substitute DAHS faculty member) at UNC-Charlotte.

3. Plan for the additional student slots needed in CHHS health science courses that will be required for completion of the NDSS degree program.
4. Provide the Information and Education Technology infrastructure and support needed for delivery of this on-line degree program.

5. Advertise this new collaborative degree program on its website and in other materials advertising related health science degree programs, identifying UNC-Chapel Hill as a partner in this offering, and noting the contributions of each partner institution.

6. Admit students accepted into this program; and confer the designated degree upon their successful completion of the program.

7. Track student credit hours projected and actually generated through this degree program, and request enrollment growth funding from the UNC General Administration for the ongoing support of the program.

V. FINANCIAL CONSIDERATIONS

There will be no exchange of tuition funds between the participating institutions. The DAHS will contribute the time and expertise of its NDSS faculty member, Mary Ellen Wells, as in-kind support for this collaborative partnership during the initial degree start up period, which shall be until such time as enrollment growth funding for the CHHS will support this cost, or through December 31, 2011, whichever comes first.

During this same start up period, DAHS will provide funding for adjunct faculty needed to support expanded capacity of existing CHHS health science courses that will be required for students enrolled in the NDSS degree program. This funding will not exceed $15,000 per academic year, and will continue until such time as enrollment growth funding for the CHHS will support this cost, or through December 31, 2011, whichever comes first.

It is expected that the this program will generate new student credit hours sufficient to maintain the local program costs at CHHS; and to support a contractual arrangement with DAHS that will provide funding to support Ms. Wells’ time commitment to the program. The specific terms of such an arrangement will be determined at a later date and documented in an addendum to this MOU or through a more formal, inter-institutional contract.

V. SIGNATURES

The University of North Carolina at Chapel Hill

Chair, Dept. of Allied Health Sciences

Dean, School of Medicine

Provost

The University of North Carolina at Charlotte

Chair, Dept’ of Kinesiology

Dean, College of Health & Human Services

Provost
MEMORANDUM OF UNDERSTANDING

BETWEEN

The University of North Carolina at Chapel Hill, School of Medicine, Department of Allied Health Sciences

AND

The University of North Carolina at Charlotte, College of Health & Human Services, Department of Kinesiology

I. PURPOSE

The purpose of this Memorandum of Understanding is to define the working relationship between The University of North Carolina at Chapel Hill, School of Medicine, Department of Allied Health Sciences (DAHS) and The University of North Carolina at Charlotte, College of Health & Human Services, Department of Kinesiology (CHHS). This agreement will clarify the collaborative roles and responsibilities of the two institutions with respect to the establishment and delivery of an on-line Bachelors Degree in Neurodiagnostics and Sleep Science (NDSS).

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Our mutual goal is to establish a collaborative partnership through which CHHS will sponsor this new degree and offer approximately four of the required upper division undergraduate courses. DAHS will deliver and be responsible for approximately eight of the specialized neurodiagnostics and sleep science courses. DAHS’s responsibility includes course management, content evaluation, and course revision.

II. LEGAL STATUS

All of the provisions of this MOU and any addenda are subject to mutual agreement of the parties, to the availability of appropriate funding at each institution, to review by the Office of University Counsel and approval by the Provost at each participating campus, and to review and approval by the UNC General Administration. This MOU will remain in effect until terminated or amended by mutual consent. Both parties to this MOU have the right to terminate this MOU by informing the partner in writing six months prior to the desired termination date.
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6. Submit needed documentation to allow students in the NDSS program to access needed specialty content through the UNC Chapel Hill Health Sciences Library.

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3. Plan for the additional student slots needed in CHHS health science courses that will be required for completion of the NDSS degree program.

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7. Track student credit hours projected and actually generated through this degree program, and request enrollment growth funding from the UNC General Administration for the ongoing support of the program.

V. FINANCIAL CONSIDERATIONS

There will be no exchange of funds between the participating institutions. The DAHS will contribute the time and expertise of its NDSS faculty member, Mary Ellen Wells, as in-kind support for this collaborative partnership during the initial degree start up period, which shall be until such time as enrollment growth funding for the CHHS will support this cost, but no later than 18 months from the date the Board of Governors approves UNC-Charlotte’s Request to Establish this degree. After the Board of Governors approves the Establishment of this program, DAHS will provide funding for adjunct faculty needed to support expanded capacity of existing CHHS health science courses that will be required for students enrolled in the NDSS degree program. This funding will not exceed $15,000 per academic year, and will continue until such time as enrollment growth funding for the CHHS will support this cost, but no later than 18 months from the date the Board of Governors approves UNC-Charlotte’s Request to Establish this degree.

It is expected that the this program will generate new student credit hours sufficient to maintain the local program costs at CHHS; and to support a contractual arrangement with DAHS that will provide funding to support Ms. Wells’ time commitment to the program. The specific terms of such an arrangement will be determined at a later date and documented in an addendum to this MOU or through a more formal, inter-institutional contract.
VI. SIGNATURES

The University of North Carolina at Chapel Hill

Lee K. McLean
Chair, Dept. of Allied Health Sciences

William L. Roper
Dean, School of Medicine

Bruce W. Carney
Executive Vice Chancellor and Provost

The University of North Carolina at Charlotte

Mitchell L. Cordova
Chair, Dept. of Kinesiology

Jane B. Neese
Interim Dean, College of Health & Human Services

Joan F. Lorden
Provost and Vice Chancellor for Academic Affairs
Consultation on Library Holdings

To: Mitch Cordova
From: Jean Hiebert
Date: April 10, 2011
Subject: Sleep Neuroscience and Atkins Library Holdings

Summary of Librarian’s Evaluation of Holdings:

Evaluator: Jean Hiebert  Date: 4/10/11

Please Check One:
- Holdings are superior
- Holdings are adequate
- Holdings are adequate only if Dept. purchases additional items
- Holdings are inadequate

Comments:

Evaluator’s Signature

Date 4/10/11

Revised 10/29/08
OAA jdp
Advances in sleep research
An evolutionary psychology of sleep and dreams
Atlas of sleep medicine
Basic sleep mechanisms
Behavioral sleep medicine [electronic resource].
Birds asleep
Brain mechanisms of sleep
Brain mechanisms of sleep
Brainstem control of wakefulness and sleep
Circadian clocks
Clinical aspects of sleep and sleep disturbance
Clinical physiology of sleep
Clinical physiology of sleep
Cultural issues and children's sleep : international perspectives :
International Pediatric Sleep Education Task Force, June 3, 2003 Chicago, Illinois
Eating, sleeping, and sexuality : treatment of disorders in basic life functions
Encyclopedia of sleep and sleep disorders
Evaluation and treatment of insomnia
Functions of dreaming
Good night's sleep : a step-by-step program for overcoming insomnia and other sleep problems
Human sleep : research and clinical care
Human sleep and its disorders
Insomnia, assessment and management in primary care
Insomniac
Integration of behavioral and relaxation approaches into the treatment of chronic pain and insomnia : January 1985 through July 1995 : 1147 citations
Journal of clinical sleep

UNC Charlotte Atkins Library Holdings - B.S. Degree in Neurodiagnostics & Sleep Science

edited by Elliot D. Weitzman
McNamara, Patrick
Chokroverty, Sudhansu
Edited by Olga Petre-Quadens [and] John D. Schlag
Skutch, Alexander F.
editors, Dennis J. McGinty .. [et al.]
editors, Dennis J. McGinty
Mircea Steriade and Robert W. McCarley
Moore
edited by Terrence L. Riley
edited by Ralph Lydic, Julien F. Biebuyck.
edited by Ralph Lydic, Julien F. Biebuyck
Judith A. Owens, supplement editor
editted by Michael R. Zales
Thorpy, Michael J.
Kales, Anthony.
Alan Moffitt, Milton Kramer, and Robert Hoffmann, editors.
Maxmen, Jerrold S.
Mendelson, Wallace B.
Mendelson, Wallace B.
National Center on Sleep Disorders Research, National Heart, Lung, and Blood Institute, National Institutes of Health,
Greene, Gayle
Glock, Martha.
Losing sleep: how your sleeping habits affect your life
Dotto, Lydia
1990

Lung biology in health and disease. Vol. 133, Regulation of sleep and circadian rhythms [electronic resource]
/ edited by Fred W. Turek, Phyllis C. Zee
1999

Manifestations and management of chronic insomnia in adults [electronic resource]
Buscemi N
2005

Mind awake and asleep; The mind hidden and divided [videorecording]
1989

Neurobiology of sleep and memory: proceedings of a conference held in Mexico City in March 1975
editors, René R. Drucker-Colín, James L. McGaugh
1977

Neuronal substrates of sleep and epilepsy
Steriade, Mircea
2003

Neuropsychology of sleep and dreaming
edited by John S. Antrobus, Mario Bertini.
1993

Night: night life, night language, sleep, and dreams
Alvarez, A.
1995

Obstructive sleep apnea: recognition and management in primary care
James F. Pagel
2008

Obstructive sleep apnea. Diagnosis and treatment
edited by Clete A. Kushida
2007

Obstructive sleep apnea. Pathophysiology, comorbidities, and consequences
edited by Clete A. Kushida
2007

Obstructive sleep apnea. Pathophysiology, comorbidities, and consequences
edited by Clete A. Kushida
2007

Overcoming insomnia: a medical program for problem sleepers
Sweeney, Donald M
1989

Philosophical essays on dreaming
edited by Charles E. M. Dunlop
1977

Physiologic nature of sleep
[edited by] Pier Luigi Parmeggiani, Ricardo A. Velluti
2005

Physiologic nature of sleep
[edited by] Pier Luigi Parmeggiani, Ricardo A. Velluti.
1992

Physiological and psychological aspects of night and shift work
Wojtczak-Jaroszowa, Jadwiga
1977

Physiology in sleep
edited by John Orem, Charles D. Barnes
1980

Physiology in sleep
edited by John Orem, Charles D. Barnes
1980

Problems of sleep and dream in children
Harms, Ernest
1964

Psychophysiological aspects of sleep: proceedings of the Third International Congress of Sleep Research
edited by Ismet Karacan
1981

Regulation of Tris-treated sleepwear: hearings before the Subcommittee on Oversight and Investigations of the Committee on Energy and Commerce, House of Representatives, Ninety-seventh Congress, first session, April 15 and June 4, 1981
1981

Relief from insomnia: getting the sleep of your dreams
Morin, Charles M
1995

Review of sleep medicine
edited by] Teri J. Barkoukis, Alon Y. Avidan
2007

Review of sleep medicine
[edited by] Teri J. Barkoukis, Alon Y. Avidan
2007
<table>
<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
<th>Year</th>
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<tr>
<td>Sleep and aging : a research-based guide to sleep in later life</td>
<td>Simon J. Williams</td>
<td>1993</td>
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<tr>
<td>Sleep and biological rhythms [electronic resource].</td>
<td>Jacob Empson</td>
<td>1993</td>
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<tr>
<td>Sleep and biological rhythms [electronic resource].</td>
<td>Jayne Gackenbach</td>
<td>1987</td>
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<tr>
<td>Sleep and dreams : a sourcebook</td>
<td>Aronoff, Michael S.</td>
<td>1991</td>
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<tr>
<td>Sleep and its secrets : the river of crystal light</td>
<td>Aronoff, Michael S.</td>
<td>1991</td>
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<tr>
<td>Sleep and respiration : proceedings of the First International Symposium on Sleep and Respiration, held in Banff, Alberta, April 1-4, 1989</td>
<td>editors, Faiq G. Issa, Paul M. Suratt, John E. Remmers.</td>
<td>1990</td>
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<tr>
<td>Sleep and society : sociological ventures into the (un)known</td>
<td>Simon J. Williams</td>
<td>2005</td>
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<tr>
<td>Sleep and the maturing nervous system</td>
<td>Kleitman, Nathaniel</td>
<td>1963</td>
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<td>Sleep and wakefulness</td>
<td>Kleitman, Nathaniel</td>
<td>1963</td>
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<tr>
<td>Sleep disorders and sleep deprivation : an unmet public health problem</td>
<td>edited by Andrew Mayes</td>
<td>1999</td>
</tr>
<tr>
<td>Sleep disorders sourcebook : basic consumer health information about sleep and its disorders including insomnia, sleepwalking, sleep apnea, restless leg syndrome, and narcolepsy; along with data about shiftwork and its effects, information on the societal costs of sleep deprivation, descriptions of treatment options, a glossary of terms, and resource listings for additional help</td>
<td>Christian Guilleminault</td>
<td>1983</td>
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<tr>
<td>Sleep mechanisms and functions in humans and animals : an evolutionary perspective</td>
<td>Sleep medicine</td>
<td>2010</td>
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<td>Sleep medicine</td>
<td>Sleep medicine reviews [electronic resource]</td>
<td></td>
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<tr>
<td>Sleep peptides : basic and clinical approaches</td>
<td>edited by Shojiro Inoué and D. Schneider-Helmert</td>
<td>1988</td>
</tr>
<tr>
<td>Sleep research; a critical review</td>
<td>Freemon, Frank</td>
<td>1972</td>
</tr>
<tr>
<td>Sleep thieves : an eye-opening exploration into the science and mysteries of sleep</td>
<td>Coren, Stanley</td>
<td>1996</td>
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<tr>
<td>Title</td>
<td>Author/Editor</td>
<td>Year</td>
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<tr>
<td>Sleep, dreams, and arousal</td>
<td>Murray, Edward R.</td>
<td>1965</td>
</tr>
<tr>
<td>Sleep, its nature and physiological organization</td>
<td>Koella, Werner P</td>
<td>1967</td>
</tr>
<tr>
<td>Sleep, sleep disorders, and biological rhythms [electronic resource]</td>
<td>[writing team, Charles Amlaner ... et al.].</td>
<td>2003</td>
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<tr>
<td>Sleep, sleep disorders, and biological rhythms [electronic resource]</td>
<td>writing team, Charles Amlaner ... et al</td>
<td>2003</td>
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<td>Sleep, sleepiness, and performance</td>
<td>Monk, Timothy</td>
<td>1991</td>
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<tr>
<td>Sleep/wake disorders : natural history, epidemiology, and long-term</td>
<td>editors, Christian Guilleminault, Elio</td>
<td>1993</td>
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<td>evolution</td>
<td>Lugaresi</td>
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<tr>
<td>Sleep: an experimental approach</td>
<td>Webb, Wilse B</td>
<td>1968</td>
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<td>Sleep: physiology &amp; pathology; a symposium</td>
<td>Edited by Anthony Kales</td>
<td>1969</td>
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<tr>
<td>Sleepfaring : a journey through the science of sleep</td>
<td>Horne, James</td>
<td>2006</td>
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<td>Sleeping and waking disorders : indications and techniques</td>
<td>Guilleminault, Christian</td>
<td>1982</td>
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<tr>
<td>Sleeping brain : proceedings of the symposia of the first international congress of the Association for the Psychophysiological Study of Sleep, Bruges, Belgium, June 19-24, 1971</td>
<td>Association for the Psychophysiological Study of Sleep.</td>
<td>1971</td>
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<td>Sleep-talking : psychology and psychophysiology</td>
<td>Arkin, Arthur M</td>
<td>1981</td>
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<tr>
<td>Somnologie [electronic resource]</td>
<td></td>
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<tr>
<td>Understanding sleep : the evaluation and treatment of sleep disorders</td>
<td>edited by Mark R. Pressman, William C. Orr</td>
<td>1997</td>
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<td>edited by Mark R. Pressman, William C. Orr</td>
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<td>Understanding sleeplessness : perspectives on insomnia</td>
<td>Neubauer, David N</td>
<td>2003</td>
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<tr>
<td>Your guide to healthy sleep [electronic resource]</td>
<td>U.S. Dept. of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute</td>
<td>2005</td>
</tr>
</tbody>
</table>

Sleep and biological rhythms: basic mechanisms and applications to psychiatry / edited by Jacque Montplaisir. Roger Goodwin.


Sleep and breathing / edited by N. Saunders, C. Sullivan.

Sleep and biological rhythms / edited by D. Lader, D. Cardinali, S.R. Pandi-Perumal.


Sleep and sleep disorders: basic and clinical research / edited by M. Chase, E.D. Weitzman.

Sleep and sleep disorders: diagnosis and treatment / edited by R.L. Williams, I. Karacan, C.A. Moore.


Sleep and sleep disorders: basic and clinical research / edited by M. Chase, E.D. Weitzman.

Sleep and sleep disorders: insomnia and narcolepsy / edited by H. Kellerman.

Sleep and sleep disorders: natural history, epidemiology, and long-term evolution / edited by T. Bradley, J.S. Floras.

Sleep and sleep disorders: regulation of Tris-treated sleepwear / hearings before the Subcommittee on Oversight and Investigations of the Committee on Energy and Commerce, House of Representatives, Ninety-seventh Congress, first session, April 15 and June 4, 1981.

Sleep and sleep disorders / edited by M.S. Arkin.

Sleep and sleep disorders: surgical and nonsurgical therapy / edited by M. Friedman.

Sleep and sleep disorders: implications in cardiovascular and cerebrovascular disease / edited by T. Bradley, J.S. Floras.

Sleep and sleep disorders: implications in cardiovascular and cerebrovascular disease / edited by T. Bradley, J.S. Floras.

Sleep and sleep disorders: implications in cardiovascular and cerebrovascular disease / edited by M. Friedman.

Sleep and sleep disorders: implications in cardiovascular and cerebrovascular disease / edited by T. Bradley, J.S. Floras.

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Sleep and sleep disorders: implications in cardiovascular and cerebrovascular disease / edited by T. Bradley, J.S. Floras.
APPENDIX G
THE UNIVERSITY OF NORTH CAROLINA

REQUEST FOR AUTHORIZATION TO ESTABLISH A NEW DISTANCE EDUCATION DEGREE PROGRAM OR SITE (THROUGH WHICH 50% OR MORE OF A DEGREE PROGRAM IS PROVIDED)

INSTRUCTIONS: Fill in the appropriate blanks and expand the electronic version of this form as required to include other more extensive information. Please submit three copies of the proposal to General Administration. As of January 1, 2010 submission of proposals will be electronic.

Date: 5/18/2011

Constituent Institution _The University of North Carolina at Charlotte_______________________

CIP Discipline Specialty Title: Health Professions and Related Sciences

CIP Discipline Specialty Number: 51.09999 Level: B X M I D

Exact Title of the Proposed Program: Bachelor of Science in Neurodiagnostics and Sleep Science

Degree Abbreviation: BS Proposed Date of Initiation: month August year 2011

Will this program be completely individual access (e.g., online, videocassette)? Y X N

If “yes,” primary mode of delivery: Internet

If “no,” list proposed sites (use additional lines as needed):

(1) ____________________________________________________________________________
    (city) (county) (state)
    (street address)

(2) ____________________________________________________________________________
    (city) (county) (state)
    (street address)

If cohort-based, length of time to complete the program (e.g., 18 mos., 2 years) ______

List any other UNC institutions that offer similar programs in the same location (if requesting a site-based program) or a similar program online or by individual access (if requesting an individual access program):

NA

For the following question, please consult "Guidelines for Alternative, Online, or Distance Education Delivery of approved Degree Programs" from the UNC Policy Manual available on the UNC GA Academic Planning website.
Which SACS COC substantive change procedure applies? (SACS policy on substantive change: http://www.sacscoc.org/pdf/081705/Substantive%20change%20policy.pdf)

One  **XX** (prior authorization from SAC; both Appendix F and G should be submitted to COC of SACS by the institution, if applicable)

Two  _______ (prior notification to SACS; Appendix F should be submitted to COC of SACS by the institution, if applicable)

Based on the SACS policy on substantive change, by what date should the campus be notified by UNC-GA of authorization to establish? ________________

The following items conform to the information required for SACS Substantive Change Procedure One.

1. **Abstract** (limit to one page or less)
   Describe the proposed change; its location; initial date of implementation; projected number of students; description of primary target audience; projected life of the program (single cohort [indicate number of years] or ongoing); and instructional delivery methods.

   The Department of Kinesiology in the College of Health & Human Services will be the academic home for the program. Initial date of implementation is 08/2011. Full enrollment is projected at 50 students (30 new students accepted each fall). Students who have earned an associate degree from an accredited institution, a professional registry as a RPSGT and/or R.EEG T., have completed prerequisites, and have basic sleep technology training are the primary target audience. The projected life of the program is ongoing.

   Instruction for the proposed neurodiagnostics and sleep science post-professional program will combine web-based, distance education courses and on-campus laboratory sessions, clinical rotations, research projects, and campus/community presentations. Program completion time is projected at one year for full-time students and two years for part-time students. Major concentrations include:
   • Advanced principles in neurodiagnostic and sleep science design and function
   • Principles of education for leaders
   • Philosophy and application of scientific research
   • Philosophy and principles of laboratory management, healthcare administration, and finance

   Clinical rotations will take place through hospitals, specialized sleep and epilepsy labs, private practice, educational institutions, and research facilities. The clinical rotation is designed to maximize student exposure to all areas in neurodiagnostics and sleep science. Students are assigned to sites by the program. Students can indicate their first and second choices and indicate whether location or financial support is most important to them. In cases where there is competition for clinical sites of close proximity, the program will work with the financial aid office to determine the students with the greatest financial need.

2. **Background information**
   Provide a clear statement of the nature and purpose of the change in the context of the institution’s mission, goals, and strategic plan; evidence of the legal authority for the change (to be provided by UNC General Administration in authorization letter).

   The UNC Charlotte Academic Plan for Extended Academic Programs (Off-Campus) Program Delivery identifies as a campus priority those initiatives that will address the needs of North
Carolina’s citizens. The academic plans of the College of Health and Human Services and the Department of Kinesiology identify the delivery of instruction to off-campus students as a priority in order to serve the health care needs of North Carolina’s citizens. In addition, the 2007 UNC Tomorrow Commission Final Report cites the need for additional preparation of health care professionals. This program will support that effort.

3. **Assessment of need and program planning/approval**

Discuss the rationale for the change, including:

- intended audience and an assessment of need (include results of surveys or special studies);

Potential students for this program are Sleep Technologists and Electroneurodiagnostic Technologists who have an associates degree and who are already registered and practicing, but who want to pursue a BS degree to expand their professional knowledge and opportunities for career advancement. The NDSS program will provide a broad based foundation for sleep science professionals to gain vital discipline of thought, critical thinking, and creative problem solving needed for key leadership, educational, management, and research roles in this emerging discipline. We anticipate that the program’s prospective students will be motivated and qualified practitioners who want to pursue this degree at the University to become the institutional, educational, governmental, and research leaders needed in these fields.

To assess the demand for the new baccalaureate degree program in NDSS, students enrolled in the five community college programs in NC with a concentration in polysomnography and/or electroneurodiagnostic technology were surveyed in 2008. Eighty two percent of the students surveyed indicated that they were interested in pursuing a BS degree in neurodiagnostics and sleep science. Students enrolled in the 33 CAAHEP accredited polysomnography and electroneurodiagnostic technology programs in the US were also surveyed and 65 percent of the respondents were interested in pursuing a BS degree in neurodiagnostics and sleep science.

Program directors from the NC Community College Polysomnography and Electroneurodiagnostic Technology with Add-on Polysomnography programs stated their students and graduates are interested in a BS degree in Neurodiagnostics and Sleep Science.

- evidence of inclusion of the change in the institution’s ongoing planning and evaluation processes;

Resources are in place within UNC-CH and the Department of Allied Health Sciences, which will support the new program (see Appendix D for organizational chart showing location of program and services for the Department of Allied Health Sciences).

- documentation that faculty and other groups were involved in the review and approval of the new site or program.

In 2008, a group of people interested in advancing the field of NDSS partnered to build relationships among but not limited to; potential students, faculty, staff, healthcare providers, providers of healthcare supplies and equipment, alumni, stakeholders, employees, and employers. This group has reviewed program goals and outcomes, reviewed a draft curriculum, researched funding needs, developed student recruitment strategies, and discussed issues related to the proposed program. If approval is granted
for the proposed program, this group will transition to an academic advisory committee. The proposed committee consists of the natural partners for a program designed to prepare graduates for advanced roles in the NDSS field.

The group is in regular contact to discuss instructional formats, curriculum, resources, admissions requirements, and other issues related to the proposed NDSS program. Members of the group have and will attended state and national professional meetings to discuss the proposed program, which include:

- The North Carolina Association of Sleep Technologists (NCAST)
- The Southern Society of Electroneurodiagnostic Technologists (SSET)
- The American Association of Sleep Technologists (AAST)
- The American Society of Electroneurodiagnostic Technologists (ASET)

Provide projected annual headcount enrollment:

<table>
<thead>
<tr>
<th>Year</th>
<th>Site 1</th>
<th>Site 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Years 1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Projected total SCHs (all sites):

<table>
<thead>
<tr>
<th>Year</th>
<th>Program Category</th>
<th>UG</th>
<th>Master’s</th>
<th>Doctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Category I</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Category II</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Category III</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Category IV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Category I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Category II</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Category III</td>
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<td></td>
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<td></td>
<td>Category IV</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Category I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Category II</td>
<td></td>
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<tr>
<td></td>
<td>Category III</td>
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<td></td>
<td>Category IV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Category I</td>
<td></td>
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<td></td>
<td>Category II</td>
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</tr>
<tr>
<td></td>
<td>Category IV</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
4. Description of the substantive change (as required by SACS)
   • description of the proposed program;

   The Department of Kinesiology in the College of Health & Human Services at The University of North Carolina at Charlotte requests permission to establish a post-professional baccalaureate degree program in neurodiagnostics and sleep science (NDSS). The proposed program will be the first of its type in the nation and will set the national standard for future B.S. degrees in NDSS. Graduates of the NDSS program will be prepared with the knowledge, competence, and adaptive skills to fulfill educational, professional and leadership positions in the field.

   The curriculum includes content to prepare students as advanced-level health care professionals in accordance with national accreditation standards and includes coursework in education, advanced clinical procedures, management, research, and leadership. Advanced roles in neurodiagnostics and sleep science require significant levels of analysis, problem solving, and professional judgment. This program will prepare students with the knowledge and skill sets to fulfill these advanced roles. Curriculum courses offered above the entry-level scope of practice will set this program apart and ahead of other programs with similar concentrations in our state, nation, and world.

   • specific outcomes and learning objectives;

Learning Objectives: The proposed post-professional NDSS BS degree will

1. Provide graduates with the broad scope of knowledge and understanding of the underlying systems and principles involved in neurodiagnostics and sleep science, as well as the complex adaptive skills needed to be able to create novel solutions to problems arising in their daily practice and in the fields of neurodiagnostics and sleep science.
2. Respond to the immediate and future needs of the community by providing competent, patient-centered, responsive, and pro-active graduates who raise the standard of care.
3. Provide graduates with the skills for critically using (and participating in) health-related research and establishing life-long learning practices.
4. Prepare graduates to become faculty for Polysomnography and Electroneurodiagnostic technology associate degree (AAS) programs in North Carolina as well as all other states within the US and other countries.
5. Provide advanced professional education for individuals pursuing or actively involved in leadership roles and/or advanced degrees.

Program Outcomes: Our graduates will hold influential positions in clinical, educational, and research settings. They will use their professional knowledge and critical thinking skills to address problems such as misdiagnosis and health care fraud and to create and maintain cost-effective practices for North Carolina and the nation. In particular, NDSS graduates will:

1. Be prepared to work in electrophysiological fields (laboratories, hospitals, industry, colleges)
2. Problem solve individually and in teams addressing unique issues arising in the health care arena involving the overlap of electrophysiology, laboratory science, management and education
3. Be prepared to teach at the community college level in electrophysiological areas
4. Create and promote policy that improves cost-effective quality practices
5. Be well prepared for additional advanced degrees.

- curriculum and schedule of proposed course offering.

### Year 1

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>NDSS 3101 - Pathophysiology of Sleep, Neurological, and Related Disorders</td>
</tr>
<tr>
<td></td>
<td>NDSS 3102 - Neurological and Sleep Diagnostic and Therapeutic Methods, and Monitoring Services</td>
</tr>
<tr>
<td></td>
<td>RESP 4103 – Evidence-Based Practice</td>
</tr>
<tr>
<td>Spring</td>
<td>NDSS 3104 - Advanced Sleep and Neurodiagnostic Clinical Procedures</td>
</tr>
<tr>
<td></td>
<td>NURN 4201 - Information Technology: Applications in Health Care</td>
</tr>
<tr>
<td>Summer I and II</td>
<td>NDSS 3105 - Practicum</td>
</tr>
</tbody>
</table>

### Year 2

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>NDSS 4101 - Principles and Practice of Healthcare Education</td>
</tr>
<tr>
<td></td>
<td>RESP 4102 - Program Administration</td>
</tr>
<tr>
<td></td>
<td>NDSS 4104 - Advanced Physiological Monitoring and Data Acquisition</td>
</tr>
<tr>
<td>Spring</td>
<td>NDSS 4105 - Leadership in Healthcare Organizations</td>
</tr>
<tr>
<td></td>
<td>NDSS 4106 - Internship</td>
</tr>
<tr>
<td></td>
<td>NDSS 4107 - Sleep and Neurodiagnostic Sciences Capstone</td>
</tr>
</tbody>
</table>

Describe and provide rationale for any differences in admission, curriculum, or graduation requirements for students enrolled online or at the new site(s), or any special arrangements for grading, transcripts, or transfer policies.

The NDSS program will follow the undergraduate policy on admission, graduation, curriculum, transfer of credits, and all other policies. Students will receive up to 46 hours of placement credit toward the NDSS program upon completion of the following:

- Earning an associate degree from an accredited institution
- Completing a registry by the BRPT and/or ABRET
- Gaining admission into the NDSS program
- Successfully completing 1 transition course in the NDSS program (NDSS 3101)

Minimum admission requirements are as follows:

- Associate degree from an accredited institution with a cumulative grade point average of 2.0 or better
• Training in sleep technology (validated by course work in the proposed NDSS program)
• Registration as an RPSGT or R.EEG T. by the Board of Registration of Polysomnographic Technologists or the American Board of Registration of Electroencephalographic and Evoked Potential Technologists
• Earn at least a C in all coursework taken by the end of the semester prior to the semester for which application is made
• Completed application for the proposed NDSS program, three professional references and written/oral interviews

General admission requirements are as follows:
• Completion or near completion of the University general education requirements
• Completion of program prerequisites

Total academic credit hours in the NDSS program = 35 for applicants who have completed an associate degree from an accredited institution, are registered by the BRPT and/or ABRET, and have completed the general education requirements of the University and the prerequisites of the program.

Requirements for grading, transcripts, and transfer policies are consistent with those of UNC-Charlotte.

Describe administrative oversight to ensure the quality of the program or services to be offered.

UNC Charlotte’s Office of Extended Academic Programs works with the academic Departments and Colleges to deliver off-campus face-to-face or technology-based instruction. The Office of Extended Academic Programs shares responsibility with the academic Departments and Colleges for distance education programs and takes the lead in coordinating all administrative and student support services. The Office of Extended Academic Programs is a component of the Office of Continuing Education, Extension, and Summer Programs, headed by Dr. Connie Martin. Dr. Martin reports to the Associate Provost for Metropolitan Studies and Extended Academic Programs, Dr. Owen Furuseth. Dr. Furuseth reports to Dr. Joan Lorden, the Provost and Vice Chancellor for Academic Affairs.

Ms. Mary Ellen Wells will be the Coordinator of the BS in NDSS program in the Department of Kinesiology. Dr. Mitchell Cordova, Chair of the Department of Kinesiology, is responsible for directing and evaluating distance education programs within the Department and works in collaboration with faculty in the department. Dr. Cordova reports to Dr. Jane Neese, Interim Dean of the College of Health and Human Services, and works collaboratively with the University’s Office of Extended Academic Programs. Interim Dean Neese reports to Dr. Joan Lorden, the Provost and Vice Chancellor for Academic Affairs.

5. Faculty and support staff
   Please Provide:
   • Number of faculty expected to deliver instruction: full-time faculty 1 part-time faculty 1
   • A complete roster (using the SACS “Roster of Instructional Staff” form) of those faculty employed to teach in the program, including a description of those faculty members’ academic
qualifications and course load in the proposed program, as well as course work taught in other
programs currently offered; Attached

- Evidence that adequate faculty members are assigned to support the program; The program is
designed to offer five to six courses per semester ranging from 15-18 credit hours and
one course during the summer totally 3 credit hours. The program director is responsible
for instructing 2-3 courses per semester and a part time faculty member is responsible
for instructing 1-2 courses per semester, and two courses are utilized from other
programs.

- Impact of the initiative on faculty workload; The program will enhance the public service
activity of the faculty. Course load will be assigned to ensure faculty will not be
overloaded so they may be actively involved in the community and professional
associations. NDSS courses will reflect the most current issues and trends in the field,
which will provide faculty the opportunities for scholarly research to be implemented in
their course planning.

- Number and responsibilities of support staff (e.g., program coordinator). The program director
(1 FTE) and one administrative assistant (0.5 FTE) are responsible for the day-to-day
activities of the program including communication, public contact, record keeping and
report writing, student services, composition, office equipment operation, filing, and
mailing.

Describe means by which the institution will provide support services for students enrolled at the
site(s) or online (e.g., admissions, skills assessment, course registration, academic advising,
counseling, etc.).

A Senior Program Manager in the University’s Office of Extended Academic Programs
will be assigned to this program to provide marketing and administrative assistance to
faculty and administrators in the Department of Kinesiology to provide direct assistance
to prospective and enrolled students, and to coordinate the efforts of all the academic,
student support, and administrative office on campus in their design and delivery of
services to off-campus students. This individual will be the same person who is also
responsible for the Department of Kinesiology’s Respiratory Therapy program in which
this proposed program was completely modeled after.

Full-time faculty members are assigned to provide academic advisement to NDSS
students in this distance education program. Mary Ellen Wells will provide the academic
advising and counseling to students in the program, and will also provide support for the
admission and skills assessment of students in the program.

6. Library and learning resources
Describe library and information resources to support the program, including staffing and services in
place to support the initiative.

A Distance Education Librarian is employed to ensure that Library resources and
services are provided appropriately to course faculty, the Senior Program
Manager in Distance Education, and enrolled students, including through such
means as electronic document delivery, the arrangement of borrowing privileges
for students at other libraries, and mailing (or delivery by other means) of
materials to individual students. If NDSS faculty and/or students discover a resource [book, journal article, dissertation, etc.] which is not owned by J. Murrey Atkins Library, they can request the Library to obtain it from another source via the Library’s Inter-library Loan Service. Candidates and faculty also have borrowing privileges at all 16 UNC campuses across the state. The library’s electronic and physical collection of resources that support the College of Health and Human Services are vast.

There are a vast number of library holdings to support the Neurodiagnostics and Sleep Science program at UNC Charlotte as well as at UNC Chapel Hill. Specifically, UNC Charlotte library contains over 100 journals and volumes related specifically to Neurodiagnostics and Sleep Science and also has access to other health related subjects, containing ~30,000 titles in multiple formats. The library also subscribes to over 200 nursing, health and medical journals in paper, as well as over 5700 electronic journals in various subject areas. The library spends approximately $2,000,000 on electronic resources yearly, including multiple nursing, medicine, and health-specific databases, such as CINAHL, Medline, Cochrane, DARE, EBM Reviews, Science Direct, Wiley Interscience, Journals @ Ovid Full-Text, PsycInfo, and many more. All distance education students and faculty have access to these resources from their office or home by means of a simple log in procedure. The University maintains a toll-free telephone number for use by distance education students. The Faculty Center for Teaching and e-Learning provides a Technical Help Desk for students in distance education programs (available by webform, e-mail, and telephone).

At UNC Chapel Hill the School of Medicine library currently supports the Sleep Medicine Division in the Department of Neurology and the UNC Sleep Disorders Center – which is an accredited full service sleep center. Existing library collections hold several hundred subject-specific books, and more than twenty journal subscriptions are already available to support both new and existing sleep and neurodiagnostic programs.

An analysis of current collection strength reveals that the library has electronic subscriptions or access to all but one of the most needed journals and to approximately half of the core texts required for the new program.

Describe cooperative agreements with other institutions and include a copy of such agreements in the appendix.

No cooperative agreements with other institutions are required.

Relative to electronic resources, describe how students and faculty will access information, training for faculty and students in the use of online resources, and staffing and services available to students and faculty.

UNC Charlotte’s Faculty Center for Teaching and Learning (FCTL) provides distance education instructors with technical training, which includes the use of Wimba and Moodle. The College of Health and Human Services information
technology staff also will provide full technology assistance to the NDSS distance education instructors.

UNC Charlotte has employed a Distance Education Librarian specifically to ensure that we are fully aware of the needs and the alternatives by which we can serve the needs of off-campus students. The Distance Education Librarian provides direct support to students and faculty in distance education programs and coordinates the involvement of subject-matter librarians and other librarians as needed. The Senior Program Manager in the Office of Extended Academic Programs coordinates with other support units on campus, with the academic program/instructors in the College of Health and Human Services, and with the students themselves on the identification of educational needs, the design of solutions to those needs, and the effective and efficient implementation of those solutions. The Senior Program Manager functions as the single point-of-contact for needs outside of those handled directly by course instructors for distance education students admitted to the University.

The Office of Extended Academic Programs, Atkins Library, and FCTL produce a non-credit online orientation course accessible to students upon program registration and throughout their first semester in the program. This online orientation provides students with training for use of Wimba, Moodle, UNC Charlotte email, Atkins Library distance education services, and technical help access. Each semester that students are registered for courses in distance education programs, they receive online information describing access to University services.

7. Physical resources
Describe physical facilities and equipment to support this initiative. Assess the impact that the proposed change will have on existing programs and services.

Office and classroom space:

Because this program is offered via individual Internet access and the instructors can teach from their current offices, there are no additional physical facilities required.

Laboratory and practicum space:

UNC Hospitals Clinical Neurophysiology Laboratory:
The Clinical Neurophysiology Laboratory performs electroencephalograms, electromyelograms, nerve conduction velocities, autonomic testing and sensory evoked potentials, which are essential to the diagnosis and monitoring of patients with illnesses involving the central and peripheral nervous systems. These studies are performed to diagnose neurological abnormalities, classify epilepsies, quantify efficacy of treatment and localize areas of neurologic disease. Highly trained staff evaluates the effects of anticonvulsant drug therapies, non-invasive monitoring and potential surgical approaches to neurologic diseases.
UNC Hospitals Sleep Center: The Sleep Studies Program and the Sleep Studies Laboratory provide extensive testing to identify the presence of sleep disturbances and to determine therapeutic solutions to these problems. Procedures include polysomnography, positive airway pressure, sleep apnea assessment, multiple sleep latency tests and other sleep studies. Diagnostic procedures are performed on both inpatients and outpatients, and the multidisciplinary sleep clinic is used to screen and evaluate sleep complaints.

For off-campus facilities:
Name of the agency or organization that is providing the space.
Rental, lease, or other arrangements involved in obtaining use of this space including rates.
Describe any agreements or understandings with the organization providing the space.

8. Financial support
Describe financial resources to support the change, including the budget for the first year of the proposed program. Include projected revenues (including tuition and fees receipts, state appropriations based on projected SCHs, grants, etc.) and expenditures, as well as amount of resources going to institutions or organizations for contractual or support services.

Please see the attachments for a summary of estimated additional costs in the first four years of program operation.

Student credit hours (SCHs) delivered to non-North Carolina residents receiving instruction outside the boundaries of North Carolina are not eligible for State-provided enrollment funding and these SCHs should not be reported on the funding matrix. The institution must set the rate charged for these SCHs at a level sufficient to cover the cost of instruction, which should be at least double the official in-state tuition rate. Indicate the average number of SCHs per semester that will be delivered to non-NC residents receiving instruction outside the boundaries of NC and the tuition that will be charged per-SCH for this instruction:

SCHs per semester delivered to non-NC residents receiving the instruction outside of NC boundaries: ______________.

Per-SCH charge, tuition and fees, for this out-of-state instruction to non-NC residents: ______________.

If a site-based degree program is to be offered out of state, a more detailed justification is required. Please provide the rationale for offer the program out-of-state and the how resources will be secured to support the program, and indicate whether any State-supported resources will be used in the program.

9. Evaluation and assessment
Describe the means used by the institution to monitor and ensure the quality of the degree program and off-campus site(s).

Quality and effectiveness of the program are assessed by:
Program personnel (advisory committee, medical director, program faculty, others actively involved in the program)
Student satisfaction
Graduate satisfaction
Employer satisfaction
Appropriateness and effectiveness of externship facilities
Student pass rate in national examinations
Students gaining and maintaining employment in the field and or advancing education

Summarize procedures for systematic evaluation of instructional results, including the process for monitoring and evaluating programs at the new site, as well as using the results of evaluation to improve institutional programs, services, and operations.

The NDSS program will use the standardized student instructor surveys utilizing the same procedures followed by all faculty in the College of Health & Human Services to evaluate overall teaching effectiveness. Additionally, the NDSS will develop other surveys that will be designed to measure the program’s overall appropriateness and effectiveness in the cognitive, affective, and psychomotor domains of Neurodiagnostics & Sleep Science. The description and distribution dates of the measurements are as follows:

1. Program Personnel Survey – Completed annually by NDSS Advisory Committee, Medical Director, program faculty, and others actively involved in the program. Survey goal is to identify strengths and/or weaknesses in the NDSS program’s resources.

2. Graduate Satisfaction Survey – Completed by recent graduates of the NDSS program. Survey is given yearly and no less than three months after a student completes the program. Survey goal is to assess NDSS graduates on how well the program prepared them for gainful employment.

3. Employer Survey – Completed by recent graduates’ employers. Survey is given six months after the graduate gains and maintains employment. Survey goal is to assess NDSS graduate employers on how well the program prepared the graduate for employment at the employer’s facility.

4. Student Satisfaction Survey – Completed by current NDSS program students. Survey is given every semester in every NDSS course. Survey goal is to assess current students to determine strengths and/or weaknesses in the programs resources and instruction.

5. Student Externship Survey – Completed by students at the end of their clinical rotation. Survey is conducted during every semester clinical is offered and one survey is completed for each clinical site attended. Survey goal is to assess the quality and effectiveness of the NDSS program’s clinical affiliates.

6. Student records – The program director demonstrates sufficient effort to maintain contact with graduates and documents employment history,
advanced education enrollment and completion, and registry examination completion.

Measurement of all program outcomes is ongoing with the following format for reporting:

- Purpose statement
- Measurement system
- Dates of measurement
- Results
- Analyses
- Action plans
- Follow-up

The NDSS Academic Advisory Committee will meet each year to review the evaluations. Revisions will be made as needed.

In accordance with accreditation requirements, the institution will ensure that the student who registers in a distance education course or program is the same student who participates in and completes the program and receives the academic credit.

10. Attachments
Attachments may include items such as (1) vitae of key faculty; (2) selected letters of support; (3) copies of library and other cooperative agreements, etc.

The following attachments will be provided:

- The curriculum vita of the Program Coordinator – Mrs. Mary Ellen Wells
- Letter of Support From NCCC President – Dr. Ralls
- Letter of Support From UNC Chapel Hill Provost – Dr. Carney
- Memorandum of Understanding between UNCC and UNCCH
- Letter of Support from UNC Chapel Hill Clinical Neurophysiology Labs Sleep Center
- Library Holdings from UNCC and UNCCH

Name, title, telephone, and e-mail of contact person to respond to questions:

Jane B. Neese, PhD, RN
Interim Dean – College of Health & Human Services
UNC Charlotte
9201 University City Boulevard
Charlotte, NC 28223
(704) 687-8640
jbneese@uncc.edu

Mary Ellen Wells, MS, RPSGT, R.EEG T, R.NCS T.
Clinical Assistant Professor
Department of Allied Health Sciences
UNC School of Medicine
This request to establish a new distance education degree program (or program site) has been reviewed and approved by the appropriate campus committees and authorities.

Chief Academic Officer

________________________________________________________________________
Personal Information:

- Mary Ellen Wells
- 48 Margaret Place, Chapel Hill, NC 27516
- 252-561-7751 (mobile) 919-843-4673 (office)
- mwells@med.unc.edu

Education:

- Currently enrolled and working toward PhD, Curriculum and Instruction, North Carolina State University, Raleigh, NC
- MS Instructional Technology, East Carolina University, Greenville, NC 2004
- BS Computer Science, East Carolina University, Greenville, NC 2001
- AAS Electroneurodiagnostic Technology with add-on Polysomnography, Pamlico Community College, Grantsboro, NC 2008

Professional Experience:

- Clinical Assistant Professor/Program Director, 2008 - present, The University of North Carolina at Chapel Hill, Department of Allied Health Sciences, Chapel Hill, NC
- Neurodiagnostic Technologist, 2010 – present, The University of North Carolina Hospitals, Clinical Neurophysiology Laboratory, Chapel Hill, NC
- Electroneurodiagnostic Technology Program Director, 2006 – 2008, Pamlico Community College, Grantsboro, NC
- Adjunct Instructor, 2003 – 2008, Pitt Community College, Greenville, NC
- Technologist, 1999 – 2006, Carolina Neurology & Electromyography, Greenville, NC

Accreditations:

- Board of Registered Polysomnographic Technologists (BRPT), #13602, 2009
- American Board of Registration of Electroencephalographic and Evoked Potential Technologists (ABRET), #3697, 2004
- American Association of Electroneurodiagnostic Technologists (AAET), #477, 2002

Memberships:

- North Carolina Association of Sleep Technologists (NCAST)
- American Society of Electroneurodiagnostic Technologists (ASET)
Department of Allied Health Sciences

- American Association of Sleep Technologists (AAST)
- Southern Society of Electroneurodiagnostic Technologists (SSET)

Bibliography:

- Taking Sleep to a New Level – The Profession of Neurodiagnostics and Sleep Science, Celebrating Allied Health Professions Appreciation Week, Council for Allied Health in North Carolina, 4 page article, 2008
- Reviewer for North Carolina Health Careers handbook, North Carolina Area Health Education Centers Program (AHEC), 2006

Teaching record:

Courses taught for NCCCS
- EDT 110 Neuroscience/Pathological Conditions
- EDT 111 Laboratory Management
- EDT 112 Instrument/Record Methods
- EDT 113 Clinical Correlates
- EDT 114 Special Procedures
- EDT 115 Laboratory Practice
- EDT 116 Clinical Experience
- EDT 118 Laboratory Practice II
- OST 149 Medical Legal Issues
- MED 118 Medical Law and Ethics
- CIS 110 - Introduction to Computers
- ACA 111 – College Student Success
- CIS 172 - Introduction to the Internet
- MAT 60 and 80 – Remedial Algebra

Lab Mentorships and Continuing Education Lecture
- ABRET Registry exam preparation, Pamlico Community College

Student Preceptorships 2007
- Electroencephalography
- Evoked potential testing
- Nerve conduction velocity testing
- Patient assessment

Grants:
Department of Allied Health Sciences

- Principle Investigator, American Society of Electroneurodiagnostic Technologists Foundation Grant, 2010-2011, 95% effort, $5,000.00

Awards:

Allen DeVilbiss Literary Award presented by the American Association of Sleep Technologists at the 2010 Annual Meeting of the Associated Professional Sleep Societies in San Antonio TX. This award is in recognition of an original article published in A2Zzz deemed to represent excellence in technical literary writing by a sleep technologist.

Professional Service:

- Committee on Accreditation for Education in Electroneurodiagnostic Technology (CoA-END) committee member, appointed 2009 - present
- American Council on Education evaluator, Military Program Evaluations, Portsmouth Virginia Electroneurodiagnostic Technology with Add-on Polysomnography Program, 2009-2010
- Invited member 2009 – present, Polysomnography Technology Program Academic Advisory Committee, Lenoir Community College, Kinston, NC
- Invited taskforce member, 2008-present, American Association of Electroneurodiagnostic Technologists, Bachelor’s Degree Taskforce
- Initiator and maintainer, CAAHEP accreditation of Electroneurodiagnostic Technology with add-on Polysomnography at Pamlico Community College, 2007 - 2008
- Invited member 2006 - present, Health Services Management Academic Advisory Committee, East Carolina University, Greenville, NC
- Institutional Effectiveness Committee member, 2007 – 2008, Pamlico Community College, Grantsboro, NC
- Public Relations Committee member, 2007, Pamlico Community College, Grantsboro, NC

Presentations:

- Polysomnography Instrumentation. UNC Hospitals Sleep Disorders Center. April 15th 2011.
- Reaching High in Sleep Medicine Education. North Carolina Association of Sleep Technologists Annual Meeting. Nov. 13th 2010
Reflective Statement:

I have worked as a technologist in the field of neurodiagnostics and sleep science since 1999. After completing my BS degree in 2001, I began pursuing my MS degree and became deeply involved in designing instruction at the college level. Distance education is a passion of mine and I created the first accredited DE associates degree in electroneurodiagnostic technology/polysomnography in our nation. I worked as a faculty member at Pitt Community College and as a program director at Pamlico Community College. My research/scholarly interests include clinical education competencies, educational leadership, distance education, advanced didactic and laboratory competencies in neurodiagnostics and sleep science, educational assessments and outcomes, community awareness of neurological and sleep disorders and patient advocacy.

Program accreditation is a major part of my responsibility. I initiated accreditation by the Committee on Accreditation of Allied Health Education Programs (CAAHEP) for an Electroneurodiagnostic Technology with add-on Polysomnography program. My program received accreditation by CAAHEP approximately six months later – the first in our state and the 12th in the nation to receive the accreditation. To ensure the best education for my students, I maintain equipment featuring the latest in technology for the field. This is achieved by soliciting funds for new equipment and acquiring donor/loaner equipment from leading manufacturers. I also follow SACS requirements and adhere to the guidelines set forth by UNC, ASET, CAAHEP, BRPT, ABRET, ACNS, and the AASM as well as participate in continuing clinical and professional education.
Currently, I am working towards creating a baccalaureate of science degree in neurodiagnostics and sleep science for which I will be the first director. This program is a collaboration between the UNC Department of Allied Health Sciences at The University of North Carolina at Chapel Hill and The University of North Carolina at Charlotte. This proposed program will be the first in our state, nation, and the world. A major goal of my endeavors for the new program is to create a national model for future BS degrees in neurodiagnostics and sleep science.
CURRICULUM VITAE

Joseph Paul Coyle, M.D.

Anesthesiologist and Critical Care Physician
Southeast Anesthesiology Consultants, P.A.
Carolinas Medical Center, Charlotte, North Carolina

Home Address: 7620 Turnberry Lane
Stanley, North Carolina 28164
Phone: (704) 892-5692

Hospital Address: Department of Anesthesiology
Carolinas Medical Center
P.O. Box 32861
Charlotte, NC 28232
Phone: (704) 355-2000 (Paging)
(704) 355-2372 (Office)

Personal Data: Born - June 17, 1952; Bethesda, Maryland
Married - 1972 - Patricia Linn Coyle
Children: Michael 1974
          Kathleen 1977
          David 1979

Education: Medical School - Hahnemann Medical College, Philadelphia, PA
1974-1978: Doctor of Medicine, Alpha Omega Alpha (President)
Medical Internship - Bethesda Naval Hospital, Bethesda, Md
1978-1979
Residency in Anesthesiology - Bethesda Naval Hospital
1979-1981
Fellowship in Critical Care Medicine
July 1981-June 1982
Harvard Medical College
Massachusetts General Hospital, Boston, Ma
Fellowship in Cardiothoracic Anesthesiology
July 1982-June 1983
Harvard Medical College
Massachusetts General Hospital, Boston, Ma

Certification: National Board of Medical Examiners #220870 1979
American Board of Anesthesiology #10505 1982
Recertification ABA 2002
Critical Care Medicine #39 1986
Examiner, American Board of Anesthesiology 1994 - 2008
Advanced Trauma Life Support 2006

License:
North Carolina #29831 1986
Virginia #0101242628 2007

Society Memberships:
American Medical Association
American Society of Anesthesiology
North Carolina Society of Anesthesiologists
Society of Cardiovascular Anesthesiologists
International Anesthesia Research Society
Society of Critical Care Medicine
Fellow of the American College of Chest Physicians

Professional Appointments and Positions:

North Carolina Respiratory Care Board
Chairman 2010 - present

Commission on Accreditation of Respiratory Care, CoARC
Commissioner: 2009 - present

University of North Carolina, Charlotte
Lecturer in the Department of Kinesiology August 15, 2008 - Present

North Carolina Respiratory Care Board
Vice Chairman 2001-2002
Chairman 2002-2008

Carolinias Medical Center,
Department of Anesthesiology
P.O. Box 32861
Charlotte, North Carolina 28232
Staff Anesthesiologist and Critical Care Physician 1990-Present
CQI Committee, Department of Anesthesiology 1990-2001
Chief, Cardiac Anesthesia 1991-2006
Director, Cardiovascular Recovery Unit 1991-2004
Medical Director, CQI/QA 1996-2001
Department of Anesthesiology 1996-Aug 1, 2008
Vice-Chief, Department of Anesthesiology 1995-2002
Medical Director, Respiratory Care 1996-Aug 1, 2008
Cleveland Clinic Foundation,
Department of Cardiothoracic Anesthesiology
9500 Euclid Ave., Cleveland, Ohio 44195
June 1988 - April 1990
Staff Anesthesiologist and Critical Care Physician 1988-1990
Division Committee 1989-1990
Director, CT Anesthesia Fellowship 1989-1990
Director, Critical Care Fellowship 1989-1990

Bethesda Naval Hospital,
8901 Wisconsin Avenue, Bethesda, Maryland 20814
July 1983 - June 1988
Staff Anesthesiologist and Critical Care Physician 1983-1988
Assistant Professor of Anesthesiology and Medicine 1983-1988
Uniformed Services Univ. Of Health Sciences Director of Cardiac Anesthesia 1983-1986
Assistant Head, Critical Care Medicine 1984-1987
Director of the Recovery Room 1987-1988
Director of Quality Assurance, Critical Care 1984-1988
Chairman of Hospital CPR Committee 1987-1988

Military Service:
Commissioned, Ensign, Medical Corps, U.S.N.R. 1975
Meritorious Unit Commendation 1985
Deployment in support of the Grenada Invasion 1985
Letter of Commendation 1985
Perioperative Care of President Ronald Reagan 1987
Letter of Commendation 1987
Perioperative Care of First Lady Nancy Reagan 1988
Honorable Discharge, Commander (Select), M.C., U.S.N.R.

Awards:
Best Doctors List 2003 – 2009
Undergraduate Teaching Award:
UNCC, College of Health & Human Services 2009
NCSRC Physician of the Year 2006
Publications:


Published Abstracts:


## Projected Funding for New Degree Program

**Bachelor of Science in Neurodiagnostics and Sleep Science**

**Regular Term 2011-12**

*(Based on 2010-2011 Change in Student Credit Hours)*

<table>
<thead>
<tr>
<th>Program Category</th>
<th>Change in Student Credit Hours</th>
<th>Instructional - Position Funding Factors</th>
<th>Instructional Positions Required</th>
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<td>Masters</td>
<td>Doctoral</td>
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### Fringe rates for staff
- **FICA @ 7.65%**
- **Retirement @ 8.75%**
- **Medical @ $4,527**

### Fringes for faculty salaries
- **FICA @ 7.65%**
- **Retirement @ 11.86%**
- **Medical @ $4,527**

### Total Positions Required
0.000

### Instructional - Position Salary Rate
$80,189

### Purpose 101
- **101-1310 Instructional Salary Amount**
  - $0
- **Other Academic Costs**
  - 44.89300%
  - 0

### Purpose 151
- **Library**
  - 11.48462%
  - 0

### Purposes 152, 160, 170 - 180
- **General Instit Support**
  - 54.04980%
  - 0
- **Neg Adj Factor**
  - 50.00000%
  - n/a
- **In-state SCHs**
  - 0
- **Financial Aid (in-state)**
  - 67.99800%
  - 0

### Total Requirements
$0

---

Request for Permission to Establish Budget-rev.xlsx/Yr0 EI Funds
### SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

**Institution:** UNC Charlotte  
**Program (API#, Name, Level):** 51.0999 Neurodiagnostics and Sleep Science  
**Date:** July 7, 2010  
**Degree(s) to be Granted:** BS  
**Program Year:** 2011-12

#### ADDITIONAL FUNDING REQUIRED - BY SOURCE

<table>
<thead>
<tr>
<th>Reallocation of Present Institutional Resources</th>
<th>Enrollment Increase Funds</th>
<th>Federal/State or Other Non-state Funds (Identify)</th>
<th>Donor Education Funds</th>
<th>New Allocations</th>
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<td>151 Libraries</td>
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<td>189 General Institutional Support</td>
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<tr>
<td>2000 Supplies and Materials</td>
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<tr>
<td>2600 Office Supplies</td>
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<tr>
<td>3000 Current Services</td>
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<td>3200 Communications</td>
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<tr>
<td>5100 Office Equipment</td>
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<td>5200 EDP Equipment</td>
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<td></td>
<td></td>
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<td>$172,320</td>
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**NOTE:** Accounts may be added or deleted as required.
Projected Funding for New Degree Program  
Bachelor of Science in Neurodiagnostics and Sleep Science  
Regular Term 2012-13  
(Based on 2011-2012 Change in Student Credit Hours)

<table>
<thead>
<tr>
<th>Program Category</th>
<th>Change in Student Credit Hours</th>
<th>Instructional - Position Funding Factors</th>
<th>Instructional Positions Required</th>
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<tbody>
<tr>
<td></td>
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<td>169.52</td>
<td>115.56</td>
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<td>Category II</td>
<td>535.74</td>
<td>303.93</td>
<td>110.16</td>
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<tr>
<td>Category IV</td>
<td>20</td>
<td>232.25</td>
<td>90.17</td>
</tr>
</tbody>
</table>

* No change in overall credit hours due to the presence of students in the Health Information Technology certificate program.

Total Positions Required: 0.455

Instructional - Position Salary Rate: $80,189

101-1310
Instructional Salary Amount: $36,514

Other Academic Costs: 44.89300% 16,392

Purpose 101
Total Academic Requirements: $52,906

Purpose 151
Library: 11.48462% 6,076

Purposes 152, 160, 170, 180
General Inst Support: 54.04980% 28,596
Neg Adj Factor: 50.00000% n/a

Fringe rates for staff
FICA @ 7.65%
Retirement @ 8.75%
Medical @ $4,527

Fringes for faculty salaries
FICA @ 7.65% $2,793
Retirement @ 11.86% $4,331
Medical @ $4,527 $2,061
$9,185

Total Requirements: $87,578

Request for Permission to Establish Budget-rev.xlsx/Yr1 EI Funds
## SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

**Institution**
NC Charlotte

**Program (API#, Name, Level)**
51.0999 Neurodiagnostics and Sleep Science

**Degree(s) to be Granted**
BS

**Date**
May 31, 2011

**Program Year**
2012-13

### ADDITIONAL FUNDING REQUIRED - BY SOURCE

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<tr>
<th>Donor</th>
<th>Reallocation of Present Institutional Resources</th>
<th>Enrollment Increase Funds</th>
<th>Federal/State or Other Non-state Funds (Identify)</th>
<th>New Allocations</th>
<th>Total</th>
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### 101 Regular Term Instruction

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**TOTAL Regular Term Instruction**  
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### 151 Libraries

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**TOTAL Libraries**  
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### 189 General Institutional Support

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<td>4,796</td>
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<td>4,796</td>
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</table>

**TOTAL General Inst. Support**  
$0  $28,596  $0  $0  $28,596

**TOTAL ADDITIONAL COSTS**  
$0  $87,578  $0  $0  $87,578

NOTE: Accounts may be added or deleted as required.
Projected Funding for New Degree Program
Bachelor of Science in Neurodiagnostics and Sleep Science
Regular Term 2013-2014
(Based on 2012-2013 Change in Student Credit Hours)

<table>
<thead>
<tr>
<th>Program Category</th>
<th>Change in Student Credit Hours</th>
<th>Instructional - Position Funding Factors</th>
<th>Instructional Positions Required</th>
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<tbody>
<tr>
<td></td>
<td>Undergrad</td>
<td>Masters</td>
<td>Doctoral</td>
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<tr>
<td>Category II</td>
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<tr>
<td>Category III</td>
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<td></td>
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</tr>
<tr>
<td>Category IV</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Undergrad</th>
<th>Masters</th>
<th>Doctoral</th>
<th>Undergrad</th>
<th>Masters</th>
<th>Doctoral</th>
<th>Undergrad</th>
<th>Masters</th>
<th>Doctoral</th>
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<tbody>
<tr>
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<td>186.23</td>
<td>109.86</td>
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<td>0.00</td>
<td></td>
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</tr>
</tbody>
</table>

Total Positions Required: **1.354**

Instructional - Position Salary Rate: **$80,189**

Instructional Salary Amount: **$108,566**

Other Academic Costs: **44.89% 48,739**

Purpose 101: Total Academic Requirements: **$157,305**

Purpose 151: Library: **11.48% 18,066**

Purpose 152, 160, 170, 180: General Instit Support: **54.05% 85,023**

Neg Adj Factor: **50.00000% n/a**

In-state SCHs: **0**

Financial Aid (in-state): **67.99% 0**

Total Requirements: **$260,394**

Fringe rates for staff:
- FICA @ 7.65%
- Retirement @ 8.75%
- Medical @ $4,527

Fringe rates for faculty salaries:
- FICA @ 7.65% $8,305
- Retirement @ 11.86% $12,876
- Medical @ $4,527 $6,129

Total Fringe: **$27,310**
### SUMMARY OF ESTIMATED ADDITIONAL COSTS FOR PROPOSED PROGRAM/TRACK

**Institution**
- UNC Charlotte

**Program (API#, Name, Level)**
- 51.0999 Neurodiagnostics and Sleep Science

**Degree(s) to be Granted**
- BS

**Program Year**
- 2013-14

**Date**
- May 31, 2011

#### ADDITIONAL FUNDING REQUIRED - BY SOURCE

<table>
<thead>
<tr>
<th>Reallocation of Present Institutional Resources</th>
<th>Enrollment Increase Funds</th>
<th>Federal/State or Other Non-state Funds (Identify)</th>
<th>Donor Education Funds</th>
<th>New Allocations</th>
<th>Total</th>
</tr>
</thead>
</table>

#### 101 Regular Term Instruction

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1210 SPA Regular Salaries</td>
<td>$0</td>
</tr>
<tr>
<td>1110 EPA Non-teaching Salaries</td>
<td>0</td>
</tr>
<tr>
<td>1310 EPA Academic Salaries</td>
<td>108,566</td>
</tr>
<tr>
<td>1810 Social Security</td>
<td>2,793</td>
</tr>
<tr>
<td>1820 State Retirement</td>
<td>12,876</td>
</tr>
<tr>
<td>1830 Medical Insurance</td>
<td>6,129</td>
</tr>
<tr>
<td>2000 Supplies and Materials</td>
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<tr>
<td>3000 Current Services</td>
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<tr>
<td>5000 Capital Outlay (Equipment)</td>
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<tr>
<td>5100 Office Equipment</td>
<td>500</td>
</tr>
<tr>
<td>5200 EDP Equipment</td>
<td>8,000</td>
</tr>
</tbody>
</table>

**TOTAL Regular Term Instruction**

- $0 + $157,305 + $0 + $0 + $0 = $157,305

#### 151 Libraries

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000 Capital Outlay (Equipment)</td>
<td>18,066</td>
</tr>
<tr>
<td>5600 Library Book/Journal</td>
<td>18,066</td>
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</table>

**TOTAL Libraries**

- $0 + $18,066 + $0 + $0 + $0 = $18,066

#### 189 General Institutional Support

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Amount</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>3200 Communications</td>
<td>14,150</td>
</tr>
<tr>
<td>3400 Printing &amp; Binding</td>
<td>14,150</td>
</tr>
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<tr>
<td>5200 EDP Equipment</td>
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</tr>
</tbody>
</table>

**TOTAL General Inst. Support**

- $0 + $85,023 + $0 + $0 + $0 = $85,023

**TOTAL ADDITIONAL COSTS**

- $0 + $260,394 + $0 + $0 + $0 = $260,394

**NOTE:** Accounts may be added or deleted as required.
### Projected Funding for New Degree Program

**Bachelor of Science in Neurodiagnostics and Sleep Science**

**Regular Term 2014-2015**

(Based on 2013-2014 Change in Student Credit Hours)

<table>
<thead>
<tr>
<th>Program Category</th>
<th>Change in Student Credit Hours</th>
<th>Instructional - Position Funding Factors</th>
<th>Instructional Positions Required</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Undergrad</td>
<td>Masters</td>
<td>Doctoral</td>
</tr>
<tr>
<td>Category I</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Category II</td>
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<tr>
<td>Category IV</td>
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<table>
<thead>
<tr>
<th>Total Positions Required</th>
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<tbody>
<tr>
<td>Instructional - Position Salary Rate</td>
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<tr>
<td>101-1310 Instructional Salary Amount</td>
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<td>Other Academic Costs</td>
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<tr>
<td>Purpose 101 Total Academic Requirements</td>
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<tr>
<td>Purpose 151 Library</td>
<td>11.48462% 13,796</td>
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<tr>
<td>Purposes 152, 160, 170 180 General Instit Support</td>
<td>54.04980% 64,927</td>
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<tr>
<td>Neg Adj Factor</td>
<td>50.00000% n/a</td>
</tr>
<tr>
<td>FICA @ 7.65%</td>
<td>In-state SCHs</td>
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<tr>
<td>Retirement @ 8.75%</td>
<td>Financial Aid (in-state)</td>
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<tr>
<td>Medical @ $4,527</td>
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</table>

**Total Requirements** | **$198,847** |
### Summary of Estimated Additional Costs for Proposed Program/Track

**Institution:** UNC Charlotte  
**Program (API#, Name, Level):** 51.0999 Neurodiagnostics and Sleep Science  
**Degree(s) to be Granted:** BS  
**Date:** May 31, 2011  
**Program Year:** 2014-15

#### Additional Funding Required - By Source

<table>
<thead>
<tr>
<th>Source</th>
<th>Reallocated Institutional Resources</th>
<th>Enrollment Increase Funds</th>
<th>Federal/State or Other Non-state Funds (Identify)</th>
<th>Donor Education Funds</th>
<th>New Allocations</th>
<th>Total</th>
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<tbody>
<tr>
<td>101 Regular Term Instruction</td>
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<tr>
<td>1210 SPA Regular Salaries</td>
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<tr>
<td>1110 EPA Non-teaching Salaries</td>
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<td>2,793</td>
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<tr>
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<tr>
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<td>4,000</td>
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</tr>
<tr>
<td><strong>TOTAL Regular Term Instruction</strong></td>
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<td>$120,124</td>
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<tr>
<td>151 Libraries</td>
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</tr>
<tr>
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<td>13,796</td>
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<tr>
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<td>13,796</td>
</tr>
<tr>
<td><strong>TOTAL Libraries</strong></td>
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<tr>
<td>189 General Institutional Support</td>
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<td>21,600</td>
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<td>21,600</td>
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<td></td>
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</tr>
</tbody>
</table>

*NOTE: Accounts may be added or deleted as required.*
I am pleased to write a letter of support for the Neurodiagnostics and Sleep Technology baccalaureate program at the University of North Carolina at Charlotte.

This program will offer a pathway for our graduates in Polysomnography and Electroencephalography to further their education and obtain their baccalaureate. In addition, it will assist us in the recruitment of qualified Polysomnography and Electroencephalography faculty for our colleges.

I am pleased on behalf of the North Carolina Community College System to support the establishment of this new program in the Department of Kinesiology.

With kindest regards,

Sincerely,

R. Scott Ralls

cc: Ms. Mary Ellen Wells
    Mr. Kennon Briggs
    Dr. Sharon H. Morrissey
    Dr. Judith C. Mann
    Ms. Renee Batts
May 26, 2010

Mitchell L. Cordova  
Professor and Chairperson Department of Kinesiology  
The University of North Carolina at Charlotte  
9201 University City Blvd.  
Charlotte, NC 28223

Dear Dr. Cordova:

The University of North Carolina (UNC) Hospitals is in support of the Neurodiagnostics and Sleep Science (NDSS) baccalaureate program being proposed at the University of North Carolina at Charlotte and in collaboration with the University of North Carolina at Chapel Hill. Upon request by the NDSS program once the degree program is established we will initiate a student contract between the program and UNC Hospitals Clinical Neurophysiology Labs and Sleep Disorders Center and providing that all criteria is met than UNC Hospitals is willing to provide clinical instruction in its Clinical Neurophysiology Laboratory and Sleep Disorders Center according to the current plan of study of the NDSS program at The University of North Carolina at Charlotte.

Please do not hesitate to call if you have any questions or concerns.

Sincerely,

Kyle K. Kalkowski  
Director  
Clinical Neurophysiology Labs  
UNC Hospitals  
Chapel Hill, NC 27514  
(919) 966-1686
October 6, 2010

Dr. Joan Lorden
Provost and Vice Chancellor for Academic Affairs
The University of North Carolina at Charlotte
Denny 118
9201 University City Boulevard
Charlotte, NC 28223-0001

Dear Joan:

I am pleased to enclose a partially executed Memorandum of Understanding between The University of North Carolina at Chapel Hill’s Department of Allied Health Sciences and The University of North Carolina at Charlotte’s Department of Kinesiology. This partnership between our School of Medicine and your College of Health and Human Services will deliver specialized, on-line curricula to advanced practice professionals in the field of neurodiagnostics and sleep science.

Joan, this new baccalaureate degree is an excellent example of inter-institutional collaboration and vision, and I appreciate the oversight you provided on behalf of your campus. I look forward to receiving a copy of the fully-executed agreement once you have obtained all the required signatures.

Sincerely,

Bruce W. Carney
Executive Vice Chancellor and Provost

BWC:st
copy: Chancellor Holden Thorp
      Dean Bill Roper
      Dr. Lee McLean
MEMORANDUM OF UNDERSTANDING
BETWEEN
The University of North Carolina at Chapel Hill, School of Medicine, Department of Allied Health Sciences
AND
The University of North Carolina at Charlotte, College of Health & Human Services, Department of Kinesiology

I. PURPOSE
The purpose of this Memorandum of Understanding is to define the working relationship between The University of North Carolina at Chapel Hill, School of Medicine, Department of Allied Health Sciences (DAHS) and The University of North Carolina at Charlotte, College of Health & Human Services, Department of Kinesiology (CHHS). This agreement will clarify the collaborative roles and responsibilities of the two institutions with respect to the establishment and delivery of an on-line Bachelors Degree in Neurodiagnostics and Sleep Science (NDSS).

DAHS has developed a specialized curricular content for a new baccalaureate degree to prepare advanced practice professionals in the field of Neurodiagnostics and Sleep Science (NDSS). The need for this new degree and level of preparation has become apparent over the past several years and is well documented in an initial “Intent to Plan” proposal prepared by the DAHS faculty. Ideally, this content would be offered in the form of a primarily on-line, post-professional degree for currently registered sleep technologists and neurodiagnostic technologists who already have their AS or AAS degrees (preferably earned from one of the NC Community College END or PSG programs.) CHHS has been successful in designing and delivering a very parallel, post-professional baccalaureate degree for practicing respiratory care professionals in North Carolina.

Our mutual goal is to establish a collaborative partnership through which CHHS will sponsor this new degree and offer approximately four of the required upper division undergraduate courses. DAHS will deliver and be responsible for approximately eight of the specialized neurodiagnostics and sleep science courses. DAHS’s responsibility includes course management, content evaluation, and course revision.

II. LEGAL STATUS
All of the provisions of this MOU and any addenda are subject to mutual agreement of the parties, to the availability of appropriate funding at each institution, to review by the Office of University Counsel and approval by the Provost at each participating campus, and to review and approval by the UNC General Administration. This MOU will remain in effect until terminated or amended by mutual consent. Both parties to this MOU have the right to terminate this MOU by informing the partner in writing six months prior to the desired termination date.
III. TERM OF THIS MEMORANDUM

The effective date of this memorandum shall be the date of execution and it shall continue in effect until terminated by either party or modified by written amendment executed by both parties.

IV. ROLES AND RESPONSIBILITIES

A. The DAHS will:

1. Provide CHHS with access to editable versions of documents prepared by their faculty that are needed for the establishment of a new NDSS degree program in the UNC system (i.e., Intent to Plan and Request to Establish).

2. Provide assistance if requested to faculty at CHHS in the final preparation and submission of these forms on behalf of UNC-Charlotte

3. Advertise and recruit students for this new degree program at UNC-Charlotte

4. Provide the full time services of a DAHS faculty member qualified in NDSS, Mary Ellen Wells (or should she be or become unavailable, of a substitute NDSS faculty member reasonably acceptable to CHHS), who will assume responsibility for overall program coordination, NDSS specialty course development and delivery, assisting with applicant screening, making admission recommendations, submitting student grades in a timely manner, and related teaching and program administrative duties as may be agreed through further addenda to this MOU.

5. Disseminate information about this collaborative degree program throughout the UNC system and the relevant professional community, and list the program on its own website, noting the contributions of each partner institution.

6. Submit needed documentation to allow students in the NDSS program to access needed specialty content through the UNC Chapel Hill Health Sciences Library

7. Provide access to the facility and faculty resources of the UNC Hospitals Sleep Disorders Center and UNC Clinical Neurophysiology Laboratory, including the services of the Medical Director of this program (Dr. Bradley Vaughn), as described in the curriculum plan for this degree.

B. The NDSS specialty courses will be cross listed at UNC-CH

C. DAHS will be responsible for the course material content and quality assurance for the specialty courses.

D. The CHHS will:

1. Submit the Intent to Plan and Request to Establish documents in accordance with the policies and timelines established for UNC-Charlotte and the UNC General Administration.

2. Assist with the process of securing approval and listing of new NDSS courses by the Registrar at UNC-Charlotte; and securing an appropriate adjunct or joint appointment for Mary Ellen Wells (or substitute DAHS faculty member) at UNC-Charlotte.

3. Plan for the additional student slots needed in CHHS health science courses that will be required for completion of the NDSS degree program.
4. Provide the Information and Education Technology infrastructure and support needed for delivery of this on-line degree program.

5. Advertise this new collaborative degree program on its website and in other materials advertising related health science degree programs, identifying UNC-Chapel Hill as a partner in this offering, and noting the contributions of each partner institution.

6. Admit students accepted into this program; and confer the designated degree upon their successful completion of the program.

7. Track student credit hours projected and actually generated through this degree program, and request enrollment growth funding from the UNC General Administration for the ongoing support of the program.

V. FINANCIAL CONSIDERATIONS

There will be no exchange of tuition funds between the participating institutions. The DAHS will contribute the time and expertise of its NDSS faculty member, Mary Ellen Wells, as in-kind support for this collaborative partnership during the initial degree start up period, which shall be until such time as enrollment growth funding for the CHHS will support this cost, or through December 31, 2011, whichever comes first.

During this same start up period, DAHS will provide funding for adjunct faculty needed to support expanded capacity of existing CHHS health science courses that will be required for students enrolled in the NDSS degree program. This funding will not exceed $15,000 per academic year, and will continue until such time as enrollment growth funding for the CHHS will support this cost, or through December 31, 2011, whichever comes first.

It is expected that the this program will generate new student credit hours sufficient to maintain the local program costs at CHHS; and to support a contractual arrangement with DAHS that will provide funding to support Ms. Wells’ time commitment to the program. The specific terms of such an arrangement will be determined at a later date and documented in an addendum to this MOU or through a more formal, inter-institutional contract.

V. SIGNATURES

The University of North Carolina at Chapel Hill

Chair, Dept. of Allied Health Sciences

Dean, School of Medicine

Provost

The University of North Carolina at Charlotte

Chair, Dep’t of Kinesiology

Dean, College of Health & Human Services

Provost
MEMORANDUM OF UNDERSTANDING
BETWEEN
The University of North Carolina at Chapel Hill, School of Medicine, Department of Allied Health Sciences
AND
The University of North Carolina at Charlotte, College of Health & Human Services, Department of Kinesiology

I. PURPOSE
The purpose of this Memorandum of Understanding is to define the working relationship between The University of North Carolina at Chapel Hill, School of Medicine, Department of Allied Health Sciences (DAHS) and The University of North Carolina at Charlotte, College of Health & Human Services, Department of Kinesiology (CHHS). This agreement will clarify the collaborative roles and responsibilities of the two institutions with respect to the establishment and delivery of an on-line Bachelors Degree in Neurodiagnostics and Sleep Science (NDSS).

DAHS has developed a specialized curricular content for a new baccalaureate degree to prepare advanced practice professionals in the field of Neurodiagnostics and Sleep Science (NDSS). The need for this new degree and level of preparation has become apparent over the past several years and is well documented in an initial “Intent to Plan” proposal prepared by the DAHS faculty. Ideally, this content would be offered in the form of a primarily on-line, post-professional degree for currently registered sleep technologists and neurodiagnostic technologists who already have their AS or AAS degrees (preferably earned from one of the NC Community College END or PSG programs.) CHHS has been successful in designing and delivering a very parallel, post-professional baccalaureate degree for practicing respiratory care professionals in North Carolina.

Our mutual goal is to establish a collaborative partnership through which CHHS will sponsor this new degree and offer approximately four of the required upper division undergraduate courses. DAHS will deliver and be responsible for approximately eight of the specialized neurodiagnostics and sleep science courses. DAHS’s responsibility includes course management, content evaluation, and course revision.

II. LEGAL STATUS
All of the provisions of this MOU and any addenda are subject to mutual agreement of the parties, to the availability of appropriate funding at each institution, to review by the Office of University Counsel and approval by the Provost at each participating campus, and to review and approval by the UNC General Administration. This MOU will remain in effect until terminated or amended by mutual consent. Both parties to this MOU have the right to terminate this MOU by informing the partner in writing six months prior to the desired termination date.
III. TERM OF THIS MEMORANDUM

The effective date of this memorandum shall be the date of execution and it shall continue in effect until terminated by either party or modified by written amendment executed by both parties.

IV. ROLES AND RESPONSIBILITIES

A. The DAHS will:

1. Provide CHHS with access to editable versions of documents prepared by their faculty that are needed for the establishment of a new NDSS degree program in the UNC system (i.e., Intent to Plan and Request to Establish).

2. Provide assistance if requested to faculty at CHHS in the final preparation and submission of these forms on behalf of UNC-Charlotte.

3. Advertise and recruit students for this new degree program at UNC-Charlotte.

4. Provide the full time services of a DAHS faculty member qualified in NDSS, Mary Ellen Wells (or should she be or become unavailable, of a substitute NDSS faculty member reasonably acceptable to CHHS), who will assume responsibility for overall program coordination, NDSS specialty course development and delivery, assisting with applicant screening, making admission recommendations, submitting student grades in a timely manner, and related teaching and program administrative duties as may be agreed through further addenda to this MOU.

5. Disseminate information about this collaborative degree program throughout the UNC system and the relevant professional community, and list the program on its own website, noting the contributions of each partner institution.

6. Submit needed documentation to allow students in the NDSS program to access needed specialty content through the UNC Chapel Hill Health Sciences Library.

7. Provide access to the facility and faculty resources of the UNC Hospitals Sleep Disorders Center and UNC Clinical Neurophysiology Laboratory, including the services of the Medical Director of this program (Dr. Bradley Vaughn), as described in the curriculum plan for this degree.

B. The NDSS specialty courses will be cross listed at UNC-CH.

C. DAHS will be responsible for the course material content and quality assurance for the specialty courses.

D. The CHHS will:

1. Submit the Intent to Plan and Request to Establish documents in accordance with the policies and timelines established for UNC-Charlotte and the UNC General Administration.

2. Assist with the process of securing approval and listing of new NDSS courses by the Registrar at UNC-Charlotte; and securing an appropriate adjunct or joint
appointment for Mary Ellen Wells (or substitute DAHS faculty member) at UNC-Charlotte.

3. Plan for the additional student slots needed in CHHS health science courses that will be required for completion of the NDSS degree program.

4. Provide the Information and Education Technology infrastructure and support needed for delivery of this on-line degree program.

5. Advertise this new collaborative degree program on its website and in other materials advertising related health science degree programs, identifying UNC-Chapel Hill as a partner in this offering, and noting the contributions of each partner institution.

6. Admit students accepted into this program; and confer the designated degree upon their successful completion of the program.

7. Track student credit hours projected and actually generated through this degree program, and request enrollment growth funding from the UNC General Administration for the ongoing support of the program.

V. FINANCIAL CONSIDERATIONS

There will be no exchange of funds between the participating institutions. The DAHS will contribute the time and expertise of its NDSS faculty member, Mary Ellen Wells, as in-kind support for this collaborative partnership during the initial degree start up period, which shall be until such time as enrollment growth funding for the CHHS will support this cost, but no later than 18 months from the date the Board of Governors approves UNC-Charlotte’s Request to Establish this degree. After the Board of Governors approves the Establishment of this program, DAHS will provide funding for adjunct faculty needed to support expanded capacity of existing CHHS health science courses that will be required for students enrolled in the NDSS degree program. This funding will not exceed $15,000 per academic year, and will continue until such time as enrollment growth funding for the CHHS will support this cost, but no later than 18 months from the date the Board of Governors approves UNC-Charlotte’s Request to Establish this degree.

It is expected that the this program will generate new student credit hours sufficient to maintain the local program costs at CHHS; and to support a contractual arrangement with DAHS that will provide funding to support Ms. Wells’ time commitment to the program. The specific terms of such an arrangement will be determined at a later date and documented in an addendum to this MOU or through a more formal, inter-institutional contract.
VI. SIGNATURES

The University of North Carolina at Chapel Hill

Lee K. McLean
Chair, Dept. of Allied Health Sciences

William L. Roper
Dean, School of Medicine

Bruce W. Carney
Executive Vice Chancellor and Provost

The University of North Carolina at Charlotte

Mitchell L. Cordova
Chair, Dept. of Kinesiology

Jane B. Neese
Interim Dean, College of Health & Human Services

Joan F. Lorden
Provost and Vice Chancellor for Academic Affairs
Consultation on Library Holdings

To: Mitch Cordova
From: Jean Hiebert
Date: April 10, 2011
Subject: Sleep Neuroscience and Atkins Library Holdings

Summary of Librarian’s Evaluation of Holdings:

Evaluator: Jean Hiebert Date: 4/10/11

Please Check One:
Holdings are superior [ ]
Holdings are adequate [ ]
Holdings are adequate only if Dept. purchases additional items. [ ]
Holdings are inadequate [ ]

Comments:

Evaluator’s Signature

4/10/11
Date

Revised 10/29/08
OAA jdp
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<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Year</th>
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<tr>
<td>Losing sleep: how your sleeping habits affect your life</td>
<td>Dotto, Lydia</td>
<td>1990</td>
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<td>circadian rhythms [electronic resource]</td>
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<td>Manifestations and management of chronic insomnia in adults [electronic</td>
<td>Buscemi N</td>
<td>2005</td>
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<td>resource]</td>
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<td>Mind awake and asleep ; The mind hidden and divided [videorecording</td>
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<td>Neurobiology of sleep and memory : proceedings of a conference held in</td>
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<td>Mexico City in March 1975</td>
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<td>Neuronal substrates of sleep and epilepsy</td>
<td>Steriade, Mircea</td>
<td>2003</td>
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<td>Neuropsychology of sleep and dreaming</td>
<td>edited by John S. Antrobus, Mario Bertini.</td>
<td>1993</td>
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<td>Night: night life, night language, sleep, and dreams</td>
<td>Alvarez, A.</td>
<td>1995</td>
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<td>Obstructive sleep apnea: recognition and management in primary care</td>
<td>James F. Pagel</td>
<td>2008</td>
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<td>Obstructive sleep apnea. Diagnosis and treatment</td>
<td>edited by Clete A. Kushida</td>
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<td>Overcoming insomnia: a medical program for problem sleepers</td>
<td>Sweeney, Donald M</td>
<td>1989</td>
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<td>Philosophical essays on dreaming</td>
<td>edited by Charles E. M. Dunlop</td>
<td>1977</td>
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<td>Physiologic nature of sleep</td>
<td>edited by Pier Luigi Parmeggiani, Ricardo A. Velluti</td>
<td>2005</td>
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<td>[edited by] Pier Luigi Parmeggiani, Ricardo A. Velluti.</td>
<td>1992</td>
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<td>Physiological and psychological aspects of night and shift work</td>
<td>Wojtczak-Jaroszowa, Jadwiga</td>
<td>1977</td>
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<td>Physiology in sleep</td>
<td>edited by John Orem, Charles D. Barnes</td>
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<td>Problems of sleep and dream in children</td>
<td>Harms, Ernest</td>
<td>1964</td>
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<td>Psychophysiological aspects of sleep: proceedings of the Third</td>
<td>edited by Ismet Karacan</td>
<td>1981</td>
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<td>International Congress of Sleep Research</td>
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<td>Relief from insomnia: getting the sleep of your dreams</td>
<td>Morin, Charles M</td>
<td>1995</td>
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Sleep and aging : a research-based guide to sleep in later life

Sleep and biological rhythms [electronic resource].

Sleep and biological rhythms [electronic resource].

Sleep and breathing in children [electronic resource] : a developmental approach

Sleep and dreaming

Sleep and dreams : a sourcebook

Sleep and its secrets : the river of crystal light

Morgan, Kevin 1987

2003

Sleep and respiratory rhythms [electronic resource].

2003

Sleep and breathing in children [electronic resource] : a developmental approach

Sleep and dreams : a sourcebook

Sleep and its secrets : the river of crystal light

Sleep and respiration : proceedings of the First International Symposium on Sleep and Respiration, held in Banff, Alberta, April 1-4, 1989

Sleep and respiration in aging adults : proceedings of the Second International Symposium on Sleep and Respiration, held at South Shore Harbour Resort and Conference Center, League City, Texas, March 9-13, 1991

Sleep and society : sociological ventures into the (un)known

Sleep and the maturing nervous system

Sleep and wakefulness

Sleep disorders and sleep deprivation : an unmet public health problem

Sleep disorders sourcebook : basic consumer health information about sleep and its disorders including insomnia, sleepwalking, sleep apnea, restless leg syndrome, and narcolepsy; along with data about shiftwork and its effects, information on the societal costs of sleep deprivation, descriptions of treatment options, a glossary of terms, and resource listings for additional help

Sleep mechanisms and functions in humans and animals : an evolutionary perspective

Sleep medicine

Sleep medicine reviews [electronic resource]

Sleep peptides : basic and clinical approaches

Sleep research; a critical review

Sleep thieves : an eye-opening exploration into the science and mysteries of sleep

Christian Guilleminault 2010

Coren, Stanley 1996
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<tr>
<th>Title</th>
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<tr>
<td>Sleep, dreams, and arousal</td>
<td>Murray, Edward R.</td>
<td>1965</td>
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<td>Sleep, its nature and physiological organization</td>
<td>Koella, Werner P</td>
<td>1967</td>
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<td>Monk, Timothy</td>
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<td>Sleep/wake disorders : natural history, epidemiology, and long-term</td>
<td>editors, Christian Guilleminault, Elio Lugaresi</td>
<td>1983</td>
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<td>Edited by Anthony Kales</td>
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<td>Sleepfaring : a journey through the science of sleep</td>
<td>Horne, James</td>
<td>2006</td>
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<td>Sleeping and waking disorders : indications and techniques</td>
<td>Guilleminault, Christian</td>
<td>1982</td>
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<td>Sleeping brain : proceedings of the symposia of the first international congress of the Association for the Psychophysiological Study of Sleep, Bruges, Belgium, June 19-24, 1971</td>
<td>Association for the Psychophysiological Study of Sleep.</td>
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<td>Sleep-talking : psychology and psychophysiology</td>
<td>Arkin, Arthur M</td>
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<td>edited by Mark R. Pressman, William C. Orr</td>
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<td>Neubauer, David N</td>
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<td>Your guide to healthy sleep [electronic resource]</td>
<td>U.S. Dept. of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute</td>
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