

October 9, 2007

MEMORANDUM

To: Executive Committee of the Academic Council

From: Peter Lange

Re: School of Nursing, Doctor of Nursing Practice (DNP) Degree

I am pleased to submit the attached proposal to seek guidelines for establishing the School of Nursing's Doctor of Nursing Practice (DNP) degree. The proposal was presented to the Academic Programs Committee on October 3, 2007 and was strongly recommended for approval. I submit this proposal to ECAC for discussion and consideration with my fullest support.

Attachment

PL/pjm

Duke University School of Nursing

Proposal for

Doctor of Nursing Practice Degree

September 2007

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Executive Summary
Doctor of Nursing Practice Proposal
Submitted by the Duke School of Nursing
September 2007

Introduction (page 12 in full proposal)

Duke University School of Nursing requests approval to establish a Doctor of Nursing Practice (DNP) degree for individuals who have earned a Bachelor of Science degree in nursing and for individuals who have earned a Master of Science degree in nursing (post-master's DNP). The degree will be awarded by the School of Nursing, and the program will be housed wholly within the School of Nursing. Students will have the opportunity to take electives in other departments on the Duke campus or at neighboring universities.

We are targeting the fall of 2008 for the first students to enter. The proposed curriculum builds upon our current master's curriculum and requires a minimum of 73- 94 credits post BSN, depending on the advanced practice specialty selected. Students can complete the degree in 9 semesters of full time study. Both part time and full time students will be eligible for the program.

Rationale (pages 12-19)

For decades, the Master of Science degree has been recognized as the “terminal practice degree” in nursing. However, in 2004, members of the American Association of Colleges of Nursing voted to recommend the DNP as the terminal practice degree following careful analysis of a series of reports by the Institute Of Medicine (Greiner & Knebel, 2003; IOM, 2001; Kohn, Corrigan & Donaldson, 2000) documenting the alarming incidence of serious medical errors in our fragmented health system and calling for professional groups and systems to promote safe, effective, patient centered, timely, efficient and equitable care.

The Institute of Medicine (IOM) report *Crossing the Quality Chasm* (2001) noted that our health care system is lacking in six dimensions of quality: safety, effectiveness (providing care based on scientific knowledge), patient-centered care, timeliness, efficiency, and equity. The report concluded that quality of care issues are primarily system issues, pointing out that “Health care has safety and quality problems because it relies on outmoded systems of work” (p.4). In other words, we need leaders who can redesign systems of care to promote better outcomes. As the IOM report (2001) noted, “The current system cannot do the job. Trying harder will not work. Changing systems will” (p. 4). Another IOM report, “*Health Professions Education: A Bridge to Quality*” (Greiner & Knebel, 2003), also identified a need to prepare professionals in interdisciplinary team work, evidence-based practice, quality improvement, and informatics. These educational goals require interdisciplinary leaders in translational care, system enhancement, measurement of outcomes, and information management.

Finally, as noted in “*Advancing the Nation's Health Needs*” (National Academy of Sciences, 2005), there is a great need for doctorally prepared practitioners and clinical faculty in nursing, and this need “would be met if nursing could develop a new non-research clinical doctorate, similar to the MD and PharmD in medicine and pharmacy, respectively” (p.74).

The DNP we are proposing answers this call. The proposed DNP degree builds on the advanced practice roles of master's prepared nurse practitioners, clinical nurse specialists, nurse anesthetists, and nurse administrators to prepare clinical scholars skilled in the translation of research and other evidence into clinical practice, measurement of patient outcomes, and

transformation of health care systems to ensure quality and safety. Further, graduates of DNP programs can teach clinical nursing courses in colleges and universities, thus helping to alleviate the current severe shortage of nursing faculty.

Practice Doctorates (page 14)

Practice doctorates are not new. Degrees such as the MD (medicine), JD (law), DDS (dentistry) and PsyD (clinical psychology) are well established. Over the last decade, given the complexity of health care, the master's degree in pharmacy transitioned to the PharmD, audiology established the Aud D, and professional programs in physical therapy began transitioning from the master's degree to the DPT (Doctor of Physical Therapy). Duke University was a leader in establishing the DPT program.

The DNP degree addresses the critical leadership skills needed to translate evidence based care into nursing practice, change systems of care and measure outcomes of groups of patients, populations and communities; it has been endorsed by the American Association of Colleges of Nursing and has already gained widespread acceptance. Fifty-nine schools of nursing have instituted the DNP degree, and over 140 schools are currently planning DNP programs. Although several schools of nursing in North Carolina are considering the DNP, Duke University School of Nursing (DUSON) will be the first school in the state to offer the degree.

Curriculum (pages 19-29)

The proposed DNP curriculum is based on *The Essentials of Doctoral Education for Advanced Nursing Practice* guidelines issued by the American Association of Colleges of Nursing in 2006 and is in accord with the guidelines issued by nursing specialty practice organizations (e.g., nurse practitioners and nurse anesthetists). The curriculum (Figure 1) has four main foci: translation, transformation, leadership, and specialty practice. The common thread throughout the curriculum is data-driven, evidence-based work that leads to quality care and patient safety. The minimum required credits range from 73- 94. These credit requirements are in keeping with the 59 existing DNP programs, which have credit requirements +/-8 credits from those proposed in this application. Credits required in other practice doctorates (DPT, Pharm D, MD, DDS) range from 126-167. Unlike the Pharm D, DPT, MD, and DDS, the DNP is not an entry into practice degree, and when the nursing credits obtained prior to the DNP (average of 60 credits) are combined with the DNP credits, the total is in line with other practice doctorates.

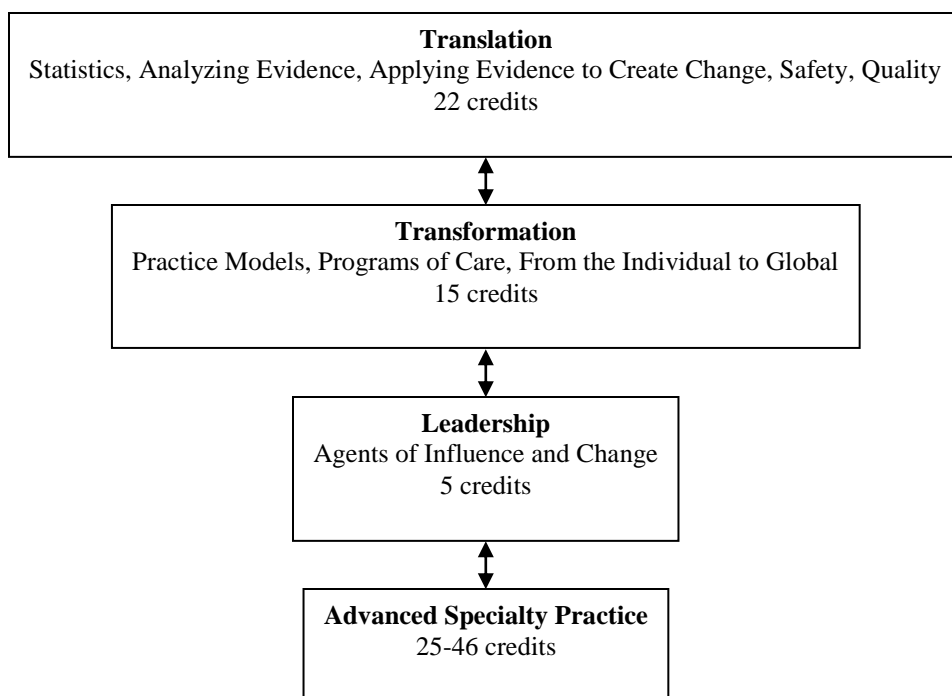


Figure 1. DNP Curriculum Foci (Excluding 6 Credits for Electives)

The curriculum plan depicting the courses for a student selecting the DNP with a Family Nurse Practitioner focus is shown in Appendix A.

The capstone course and the advanced practice residency are the integrating courses that will bring together the practice and scholarship elements of the Doctor of Nursing Practice degree. The specialty practice residency will allow students to integrate and use their knowledge and skills in the specialty area of practice in providing either direct or indirect care to patients. The capstone project will be a 4-semester scholarly project designed to address a practice issue affecting groups of patients, health care organizations or health care systems. Students will work with clinics, inpatient units, hospitals or health care systems to assess, plan, implement, and evaluate an initiative jointly agreed upon by the practice setting, the student, and the student's advisory committee. For example, students can partner with faculty in the Duke Center for Community Research (DCCR) to identify and implement projects that benefit the Durham community.

The student's advisory committee for the capstone project will be composed of at least three faculty members, who will oversee the project. Depending on the student's specialty practice area, a non-faculty member with expertise in the area may be named to the committee. At the completion of the scholarly project, the student will present his/her findings via an oral presentation. A minimum of one manuscript will be prepared for submission to a professional journal, and the student will also prepare abstracts for professional conferences. At the completion of the capstone project, an affirmative vote of the advisory committee indicating successful completion of the project will be required.

Resources (pages 29-31)

Space: The DNP program will be housed in the 59,000 square foot School of Nursing building on Trent Drive. There is sufficient student space, classroom space and space for the new faculty and administrative staff to be hired over the first 5 years of the program.

Faculty: DUSON currently has 50 regular rank faculty; 36 (72%) of whom are prepared at the doctoral level. We plan to hire two additional faculty to provide more depth in the faculty ranks for the DNP program over the initial 5 year period of the program.

Our current master's prepared advanced practice faculty are committed to enrolling in a DNP program, and their completion of the DNP program at Duke or elsewhere will increase the number of faculty prepared to teach in the DUSON DNP program.

Tuition: The School of Nursing financing is tuition driven. Students applying for the DNP program will pay the going rate for tuition, which for fall of 2008 is estimated to be \$1,000 per credit. Both need-based and merit-based scholarships will be available. Additionally, those nurses who work at least 30 hours a week at Duke Hospital during their educational program and who have at least one year tenure at the organization are eligible for the Registered Nurse Tuition Assistance Program (RNTAP). This program covers up to 90% of the Duke School of Nursing tuition.

Five Year Student, Faculty and Resource Projections: The projections conservatively estimate an incremental operating deficit of \$69,000 during the first year of the new program with only eight students initially enrolled. However, after increasing enrollment by only ten students to a total of 18 in Year Two, the program is projected to operate at slightly better than breakeven. Once the program is fully subscribed with 65 students in Year Five (and after taking into account the 25 students who are expected to enroll in the DNP instead of the MSN program), the projections indicate a stable go-forward surplus that will exceed \$484,000 annually and generate an incremental operating gross margin of greater than 40% for the School of Nursing. A HRSA proposal submission is expected that, if successful, will generate \$250,000 in incremental funds to the School that are not included in the numbers given above.

Actual and Potential External Funding: In November 2007, once the proposed degree has been approved by Duke University, the School of Nursing will submit to the Health Resources and Services Administration (HRSA) (under the U.S. Department of Health and Human Services) an application for funding under the Advanced Education for Nurses call for proposals. HRSA training grants have been instrumental in providing financial support for new initiatives at DUSON. The school currently has six active grants funding master's specialty programs in nursing. The grants are for 3 years (~\$750,000) with competitive renewal for an additional 2 years.

Students (pages 31-32)

Our initial target population for DNP students will be nurses with an earned master's in nursing who are teaching and/or working in an advanced practice specialty (e.g., clinical nurse specialist, nurse practitioner, nurse administrator, or specialist in nursing informatics). The critical question is, "If we develop the program, will they enroll?" Focus groups held at Duke Hospital indicate a high degree of interest in the program from master's prepared advanced practice nurses (N=70),

and our current faculty who are master's prepared in an advanced practice specialty (n=14) have voiced a strong desire to return to school for the DNP. Also, 16 MSN prepared nurses from other states have already expressed interest in the program. Our second target population will be students currently enrolled in our master's curriculum, followed by BSN- prepared nurses who seek graduate work in an advanced nursing practice specialty.

Careers Post DNP Preparation (pages 32-33)

Graduates of the DUSON DNP will function as advanced practice nurses and clinical leaders in service and academic settings not only in North Carolina but across the nation. The American Association of Colleges of Nursing has defined the DNP broadly so that there is career flexibility allowing movement between clinical practice, administration and academia. In conversations with other DNP program directors, the common theme is that graduates (Post Master's DNP) have a different level of practice and leadership. They become change agents within their organization.

Clinical Practice: Those graduates who are prepared in an advanced practice specialty to provide either direct or indirect patient care will be eligible to sit for the national certification exam (as applicable) and will have the knowledge and background in epidemiology, biostatistics, health care practices, health care finance and policy, evidence-based practice and informatics to serve as change agents and provide leadership in the practice environment. Their specialty practices will be informed by their ability to inform, develop, transform, and evaluate core competencies in clinical prevention, disease management, and population-based care in complex health systems and diverse communities. Using literature from clinical and community-based trials and interventions, nurse practitioners will use evidence-based methods to improve the quality and efficiency of care to individuals, groups, and populations. They will look broadly at patient sensitive indicators and determine how interventions and changes in practice affect these indicators.

Service: In the service sector, potential employment opportunities for DNP graduates include positions as owner or director of clinical practice in an ambulatory setting; director of the DUSON-DUHS Translational Institute; Chief Nursing and Patient Care Officer; Associate Chief Nursing Officer for Education, Clinical Practice, Clinical Quality, or Advanced Practice; Vice President of Nursing Services; Chief, Patient Safety Officer; Director, Accreditation and Regulatory Affairs; and Director, Research, Quality, and Outcomes.

Academia: Part of the current nursing shortage is attributable to the shortage of nursing faculty, which limits the number of students who can be admitted to schools of nursing. Further, the average age of nursing faculty is 59 years; thus within 10 years there will be a mass exodus of faculty from schools of nursing. The number of PhD-prepared faculty is not increasing; indeed, the number of nurses graduating with research doctorates has remained steady for the past decade at approximately 400 annually, and not all of these graduates enter academia; some elect to pursue careers in service, government, or industry. Advanced practice nurses need to be taught by those who understand advanced practice nursing. Advanced practice nurses prepared at the DNP level will be valuable faculty members who can pass on their knowledge to the next

generation of nurses. In addition, they will bring a wealth of clinical expertise and knowledge and a deep understanding of the factors required to translate research into practice and change practice to improve health outcomes.

Timeline for Implementation

We anticipate graduating the first DNP students in the spring of 2010. The timeline to reach that goal is detailed below.

| Semester/Year | Metric |
|----------------------|--|
| Summer 2007 | Approval by DUSON faculty Approval by Duke Medicine |
| Fall 2007 | University review and approval Training grant proposal submitted Course development |
| Spring 2008 | Course development Policy and procedure development Student recruiting begins |
| Summer 2008 | Course and policy refinement |
| Fall 2008 | Post MSN students enter (1 st cohort) Course evaluations and refinement |
| Fall 2009 | Current MSN, BSN and Post Master's students enter (2 nd cohort) Course evaluations and refinement |
| Spring 2010 | First cohort graduates Course evaluations and refinement |

Appendix A. Full-Time Doctor of Nursing Practice: Family Nurse Practitioner Specialization

DNP FNP PROGRAM OF STUDY
 Matriculation Plan (Full Time)
 83 credits

| | Semester 1 | Semester 2 | Semester 3 |
|-------------------------------|---|---|--|
| Translation | N307 Research Methods - 3 credits | N308 Applied Statistics - 2 credits | N312 Research Utilization - 3 credits |
| Transformation | N301 Epi and Population Based Approaches to Health Care - 3 credits | N502 Health Promotion and Disease Prevention - 3 Credits | |
| Leadership | | | Elective - 3 credits |
| Synthesis | | | |
| Specialty Practice | N332 Diagnostic Reasoning & Physical Assessment - 4 credits | N333 Managing Common Acute and Chronic Health Problems I - 3 credits 104 Practicum Hours | N334 Managing Common Acute and Chronic Health Problems II - 3 credits 104 Practicum Hours |
| | N330 Pathophysiology - 3 credits * | N331 Clinical Pharmacology - 4 credits * | |
| Total Semester Credits | 13 | 12 | 9 |

| | Semester 4 | Semester 5 | Semester 6 |
|------------------------------------|---|--|--|
| Translation | | | N6XX Data Driven Health Care Improvement - 4 credits |
| Transformation | N303 Health Services Program Planning and Outcomes - 3 credits | | N6XX Health Systems Transformation - 3 credits |
| Leadership | | | N6XX Effective Leadership - 2 credits |
| Synthesis | | N449 Family Nurse Practitioner Residency - 4 credits 400 Practicum Hours N6XX Capstone - var 1-6 credits | |
| Specialty Practice | N441 Child Health in Family Care - 4 credits 104 Practicum Hours N442 Sexual and Reproductive Health - 4 credits; 104 Practicum Hours | | |
| Total Semester Credits | 11 | 4+ | 9 |
| Total Practicum Hours - 816 | | | |

| | Semester 7 | Semester 8 | Semester 9 |
|-----------------------------------|---|--|--------------------------------|
| Translation | N6XX Evidence Based Practice and Applied Statistics I - 4 credits | N6XX Evidence Based Practice and Applied Statistics II - 3 credits | Elective - 3 credits (T,T,L) |
| Transformation | N6XX Transforming the Nation's Health - 3 credits | | Elective - 3 credits (T,T,L) |
| Leadership | | N402 Financial Management and Budget Planning - 3 credits | |
| Synthesis | N6XX Capstone - var 1-6 credits | N6XX Capstone - var 1-6 credits | N6XX Capstone -var 1-6 credits |
| Specialty Practice | | | |
| Total Semester Credits | 7+ | 6+ | 6+ |
| Total Credits Minimum - 83 | | | |

1. 0 Introduction of the Proposed Degree

The Duke University School of Nursing requests approval to establish a Doctor of Nursing Practice (DNP) degree for individuals who have earned a Bachelor of Science degree in nursing and for individuals who have earned a Master of Science degree in nursing (post-master's DNP). The traditional doctoral degrees in nursing (the Doctor of Philosophy and the Doctor of Nursing Science) prepare nurse scientists to focus on knowledge generation through scientific inquiry and to develop the next generation of nurse scientists. The Master of Science degree prepares advanced practice nurses (nurse practitioners, clinical nurse specialists, nurse anesthetists and nurse midwives) and leaders in indirect care areas such as administration and informatics. For decades, the Master of Science degree has been recognized as the "terminal practice degree" in nursing. However, in 2004, members of the American Association of Colleges of Nursing voted to recommend the DNP as the terminal practice degree following careful analysis of a series of reports by the Institute Of Medicine (Greiner & Knebel, 2003; IOM, 2001; Kohn, Corrigan & Donaldson, 2002) documenting an alarming incidence of serious medical errors in our fragmented health system and calling for professional groups and systems to promote safe, effective, patient centered, timely, efficient and equitable care. One report, "*Health Professions Education: A Bridge to Quality*" (Greiner & Knebel, 2003), also identified a need to prepare professionals in interdisciplinary team work, evidence-based practice, quality improvement, and informatics. These educational goals require interdisciplinary leaders in translational care, system enhancement, measurement of outcomes, and information management.

The DNP degree builds on the advanced practice roles of master's prepared nurses (such as nurse practitioners, clinical nurse specialists, nurse anesthetists, nurse administrators) to prepare clinical scholars skilled in the translation of research and other evidence into clinical practice, measurement of patient outcomes, and transformation of health care systems to ensure quality and safety. Further, graduates of DNP programs can teach clinical nursing courses in colleges and universities, thus helping to alleviate the current severe shortage of nursing faculty. The School of Nursing is well prepared to offer the DNP degree. Duke is a leader in translational health care, having received one of the first NIH grants to support translational scientists as part of the Clinical and Translational Science Award (CTSA). Further, a strategic goal of the Duke University School of Nursing (DUSON) is to create a Translational Institute jointly sponsored by DUSON and Duke Hospital to promote the use of evidenced-based practice innovations and to evaluate outcomes of care. We intend to become a model for collaborative translation of research discoveries into nursing care delivery. Our linkages with DUHS and our commitment to improving practice will enable us to provide excellent educational opportunities for students in the DNP program.

2.0 Rationale

2.1 The Need for Clinical Leaders in Nursing

Despite an extremely expensive health care system and increasing expenditures for health care, the United States has mediocre health care outcomes compared to other industrialized nations (Agency for Healthcare Quality and Research, 2003; National Center for Health Statistics, 2003; Reinhardt, Hussey & Anderson, 2002). Further, reports by the Agency for Healthcare Quality and Research indicate that despite recent improvements, the gap between best possible care and actual care remains large (AHRQ, 2004). *To Err is Human* (Kohn, 2002) estimated that hospital

deaths caused by iatrogenic injuries range from 44,000 to 98,000 per year – making these injuries the seventh leading cause of death in the United States. The Institute of Medicine report, *Crossing the Quality Chasm* (2001) noted that our health care system is lacking in six dimensions of quality: safety, effectiveness (providing care based on scientific knowledge), patient-centered care, timeliness, efficiency, and equity. The report concluded that quality of care issues are primarily system issues, pointing out that, “Health care has safety and quality problems because it relies on outmoded systems of work” (p.4). In other words, we need leaders who can redesign systems of care to promote better outcomes. As the IOM report (2001) noted, “The current system cannot do the job. Trying harder will not work. Changing systems will” (p. 4).

These findings, coupled with the increased complexity of health care, the dominance of chronic illnesses and the lack of access to health care in the United States (National Center for Health Statistics, 2003), point to the need for new clinical leaders in nursing to work in inter-professional teams to translate research into clinical practice, transform health care systems to improve safety and quality, and lead teams that provide health care to diverse populations. The Doctor of Nursing Practice Degree is designed to prepare such clinical leaders.

2.2 The Need for Nurse Faculty

In the last decade, the shortage of nurses in the U.S. has been widely documented; and it is predicted that 1.4 million new and replacement nurses will be needed by the year 2020 (HRSA 2006). The shortage falls into three broad categories – registered nurses prepared to provide nursing care primarily in hospitals or clinics; advanced practice nurses who provide acute and chronic illness management in a variety of settings; and nursing faculty who are responsible for educating nurses at all levels. Although enrollment in both baccalaureate and master’s programs has increased in the last few years, continued growth faces a key rate-limiting factor: a shortage of faculty and in particular, a shortage of faculty to teach clinical coursework to bachelor’s and master’s degree students.

One way to try to reduce the faculty shortage would be to look to PhD or research doctoral program graduates in nursing. Indeed, graduates of these programs are key faculty members in Schools of Nursing, and they provide leadership in educating new nurse scientists. However, the number of graduates of PhD programs in nursing has remained fairly stable over the years, at only 351 (2000) to 413 (1997) per year (National Science Foundation Survey of Earned Doctorates, 1997, 2000, 2003, 2005), too few to supply the number of faculty needed in baccalaureate and masters’ nursing programs in the U.S. Further, nurse faculty are aging, and therefore the shortage of faculty is only going to increase. For example, in 2002, the average age of doctorally prepared faculty was 53.3 years, compared to 50.2 years in 2000. The need to increase the number of PhD prepared faculty is great, and a reasonable goal is to double the number of graduates in the years ahead. Yet even if this goal is achieved, PhD prepared faculty will not be available in sufficient numbers to provide expert clinical instruction to bachelor’s and master’s students in nursing. As noted in *“Advancing the Nation’s Health Needs”* (National Academy of Sciences, 2005) “The need for doctorally prepared practitioners and clinical faculty would be met if nursing could develop a new non-research clinical doctorate, similar to the MD and PharmD in medicine and pharmacy, respectively” (p.74). The DNP we are proposing answers this call.

2.3 Practice Doctorates

Practice doctorates are not new. Degrees such as the MD (medicine), JD (law), DDS (dentistry) and PsyD (clinical psychology) are well established. Over the last decade, given the complexity of health care, the master's degree in pharmacy transitioned to the PharmD, audiology established the Aud D, and professional programs in physical therapy transitioned from the master's degree to the DPT (Doctor of Physical Therapy). Duke University was a leader in establishing the DPT program. In nursing, practice doctorate programs began 25 years ago at Case Western Reserve University. However, the initial nursing practice doctorate programs lacked definition and focus, had little impact on nursing educational programs nationwide, and remained few in number.

The proposed DNP degree is well defined and addresses the critical leadership skills needed to translate evidence into practice, change systems of care and measure outcomes for groups of patients, populations and communities; it has been endorsed by the American Association of Colleges of Nursing and has already gained widespread acceptance. Fifty-nine schools of nursing have instituted the DNP degree, and over 140 schools are currently planning DNP programs.

2.4 Unique Characteristics of DNP Programs

The DNP degree is designed to provide the knowledge required for evidence-based nursing care, systems that promote safety and quality, and outcome measurement for patients, communities and populations. The DNP builds on master's degree programs that prepare graduates for an advanced role (for example, nurse practitioner, clinical nurse specialist, nurse anesthetist, and leader in administration or informatics). In addition, DNP programs include theory and empirical findings from nursing and other disciplines (including the translation of research into practice, use of information systems, system change, leadership and policy) to prepare graduates to:

- Integrate nursing science and knowledge from ethics, biophysical, psychosocial, analytical and organizational sciences as the basis for advanced practice and new approaches to care delivery.
- Use analytic methods to critically appraise the literature and develop best practices.
- Implement and evaluate best practices in care to meet current and future needs of patients, communities and populations. This includes implementing processes to evaluate outcomes of practice, practice patterns, and systems of care within a practice setting, health care organization, or community against benchmarks and determine variances in practice outcomes and population trends.
- Develop effective strategies to ensure safety and quality health care for patients and populations taking into consideration systems, communication patterns, interdisciplinary teams, finances, health economics, and policy.
- Design, direct, and evaluate quality improvement methodologies to promote safe, timely, effective, efficient, equitable, and patient centered care.
- Analyze the cost-effectiveness of practice initiatives taking into account risks and improvements in health outcomes.
- Select and evaluate information systems and patient care technology, considering related ethical, regulatory and legal issues, to improve patient care and healthcare systems.

- Understand major factors and policy triggers that influence health policy-making in order to influence policy; educate others about health disparities, cultural sensitivity and access to quality care; and advocate for social justice, equity, and ethical policies in all health care arenas.
- Employ consultative, collaborative and leadership skills on intra-professional and inter-professional teams to foster effective communication and enhance patient outcomes in complex health care delivery systems.

2.5 The Distinctive Duke Program

The DNP program at Duke will distinguish itself from other DNP programs by focusing on the development of advanced practice nurses with expertise in evaluating and translating new knowledge to the practice setting. Duke is one of only a few academic health centers in the country to lead in translational work to improve the care of patients, communities and populations. Translation of knowledge to improve society is a goal of Duke University, and the CTSA grant awarded to Duke Medicine enhances our focus on the translation of evidence into clinical practice. Further, the School of Nursing's strategic goal to create a Translational Institute with DUHS nursing to promote the use of evidenced-based practice innovations and evaluate the outcomes of care will provide a strong platform for the DNP program. The DNP program will in turn facilitate our efforts to develop a model for the collaborative translation of research discoveries into nursing care delivery, in order to improve both quality and efficiency. Our linkages with DUHS and our commitment of resources to the development of research infrastructure provide a strong foundation for the education of DNP students.

Our faculty include experts on early and late life, care at the end of life, informal caregiving, primary care, chronic illness, nursing informatics, leadership and systems and health services research. Faculty, staff and clinicians will work with students to mine DUHS databases to explore variations in practice, and will mentor students in testing evidenced-based nursing protocols and evaluating their impact on key outcomes.

The DNP program will focus on evidence-based practices that result in better outcomes, reduced costs, and improved support of patients and family members of those suffering from extended illness. The focus of the Duke University School of Nursing DNP program is consistent with Duke Medicine's leading-edge commitment to more rapid translation of basic scientific and clinical inquiry into clinical improvements, as part of an overall effort to transform and improve patient care.

3.0 Relationship to Existing Programs

3.1 At the Duke University School of Nursing

The proposed DNP is fully congruent with the mission of the school of nursing "...to create a center of excellence for the advancement of nursing science, the promotion of clinical scholarship and the education of clinical leaders, advanced practitioners and researchers. Through nursing research, education and practice, students and faculty seek to enhance the quality of life for people of all cultures, economic levels, and geographic locations." Key to the mission is the promotion of clinical scholarship and the education of clinical leaders and advanced practitioners-- the foci of the proposed DNP program.

The DNP program also is congruent with one of the four strategic goals of the School of Nursing: to develop a Translational Institute sponsored jointly by Duke School of Nursing and Duke Hospital that seeks to facilitate the movement of clinical discoveries into broad based clinical applications with the goal of improving health care outcomes through practice improvements.

The Duke University School of Nursing Doctor of Nursing Practice program will be a practice doctorate and therefore will be a program of the School of Nursing. The program will build upon and articulate with our well established Master of Science in Nursing program, a degree granting program of the School of Nursing. The primary site for courses, advisement, and student related activities will be the School of Nursing. Students will enroll in a curriculum that includes courses based on *The Essentials of Doctoral Education for Advanced Nursing Practice* guidelines issued in 2004 by the American Association of Colleges of Nursing (Appendix A). DNP students will have joint seminars with the school's PhD students; and this synergy will lead to broader and more in-depth discussions about clinical inquiry, discovery, dissemination, translation and evaluation of research findings in practice. Students interested in pursuing a joint practice/ teaching position will also have the option of completing a mentored teaching experience with BSN or MSN students in the School of Nursing.

3.2 At Duke Medicine

A core aim of the recently funded Duke Translational Research Institute is to provide “a comprehensive educational program, a place where young clinical and translational scientists learn their trade in an environment where excellent research is happening all around them.” The model presented in the Clinical and Translational Science Award application shows the complementary areas of expertise of PhD-prepared nurses and DNP-prepared nurses. PhD-prepared nurses' primary foci are knowledge discovery and dissemination. DNP prepared nurses use research forums to identify new clinical research findings and evaluate these findings for translation and application to practice settings. Then, working with inter or intra-professional teams, a plan for practice change is developed, implemented, and evaluated for its effects on health outcomes or system improvement. The change in practice serves as a springboard for new clinical research questions, which are then addressed by PhD-prepared nurses. It is this continuing cycle of bench to bedside and back that moves knowledge discovery toward health care practice, thus improving the health care of residents of the nation and beyond.

3.3 The Interprofessional Environment at Duke

The interprofessional environment at Duke has a wealth of resources that are open to interdisciplinary audiences and will bring both breadth and depth to the education of the DNP students. Institutes and Centers such as the Institute for Care at the End of Life (ICEOL), which is creating and testing new models of care; sponsoring seminars on grief and loss, producing resource materials, encouraging new thinking and dialogue and conducting training and educational conferences, will be open to DNP students. Other opportunities will include the Neonatal-Perinatal Research Institute, which holds weekly Grand Rounds for the discussion of both clinical and research issues; the Science of Oncology Symposium, which sponsors seminars every week throughout the school year; and Duke Hospital, which offers monthly ethical case conferences. In the School of Nursing the TRAC (Trajectories of Aging and Care) Center holds research seminars that are video-broadcasted live to a consortium of Schools of Nursing across the country. The Center for the Study of Aging holds weekly grand rounds,

research conferences, and the Geriatrics Excellence in Teaching Series, as well as a weekly palliative care conference. The Geriatrics Excellence in Teaching Series (GETS) is a wonderful faculty development program held once a month to help fellows and faculty in the Division of Geriatrics to enhance their skills as teachers and curriculum developers. The monthly seminars address a variety of relevant educational skills topics for clinical teachers, including small group and clinical teaching, giving effective feedback, curriculum development and evaluation, the educator's portfolio, and cultural competency. The series is especially important for our school's programs preparing geriatric nurse practitioners and clinical nurse specialists.

3.4 At Duke University and Collaborating Institutions

As previously noted, the DNP will be housed in the School of Nursing and the degree will be awarded by the school. The planned curriculum will allow students to take 6 or more credits of electives in the School of Nursing, in other departments at Duke University, or at our collaborating institutions, UNC-CH and NCSU. Likewise, other students at Duke University or at the collaborating institutions can enroll in selected DNP courses. Courses that may be of particular interest are Evidence-Based Practice and Applied Statistics, Health System Transformation, and Data Driven Health Care Improvements.

3.5 In North Carolina

Although several schools of nursing in North Carolina are considering the DNP, DUSON will be the first school of nursing in the state to offer the degree. DUSON is noted for taking the lead in the development of rigorous graduate programs that meet emerging health care needs of the residents of North Carolina and the nation. For example, we offered the first graduate neonatal nurse practitioner, acute care nurse practitioner, pediatric acute and chronic care nurse practitioner programs, as well as the first informatics and clinical research management programs in the state. We intend to set an example of excellence in DNP programs, not only for the state but also for the nation. We are confident in our success based on the significant resources available at DUSON, our strong inter-professional collaborations with other programs and departments at Duke University, and our link with the Duke Translational Medicine Institute, whose focus is to move research into practice. These resources are available at no other institution in the state or the region.

3.6 Relationship to other Nursing Schools

Currently 59 nursing programs in the United States are enrolling students in DNP programs, and over 140 schools are actively planning for admission of DNP students. The DUSON faculty began discussion of the DNP two years ago and we have moved forward thoughtfully, learning from the initial DNP programs, seeking advice from consultants, and, as described more fully later in this document, testing the potential applicant pool for interest.

In Table 1, the 15 top ranked graduate programs in nursing, using US News and World Report data for 2006 (peer evaluations of graduate nursing programs), are noted in **bold**, and the top 15 nursing programs based on National Institute of Nursing Research/National Institutes of Health funding are noted in *italics*. The table also lists the status of PhD and DNP programs at the schools. All of the top-ranked schools offer the PhD in nursing; and 66% of the top-ranked schools offer the DNP. Johns Hopkins has announced the planning of their DNP program; other schools on the list may be at the same point as Duke, planning for the DNP program but not having publicly announced their plans.

Table 1. PhD and DNP Programs in 15 Top-ranked Schools of Nursing by NIH Funding and by US News & World Report Ranking

| School | US N&WR Ranking (Peer Based) 2006 | NIH Funding (Data Based) 2005 | Existing PhD Program Y=Yes | Existing DNP Program Y=Yes |
|---------------------------|---|-------------------------------------|----------------------------------|----------------------------------|
| Univ Wash | 1 | 2 | Y | Y |
| UCSF | 2 | 1 | Y | |
| U Penn | 3 | 3 | Y | |
| Johns Hopkins | 4 | 8 | Y | Planning |
| Univ Mich | 5 | 9 | Y | |
| UNC-CH | 5 | 4 | Y | |
| Oregon Health Sciences | 7 | 16 | Y | Y |
| Univ Ill-C | 7 | 6 | Y | Y |
| Univ Maryland | 7 | 58 | Y | Y |
| Univ Pitt | 7 | 5 | Y | Y |
| Yale | 7 | 7 | Y | |
| UCLA | 12 | 14 | Y | |
| Univ Iowa | 12 | 17 | Y | Y |
| Case | 15 | 33 | Y | Y |
| Duke | 15 | 19 | Y | Planning |
| Indiana/Purdue Univ | 15 | 15 | Y | Y |
| Univ Colorado | 15 | 100 | Y | Y |
| Univ Texas Austin | 19 | 10 | Y | |
| Columbia Univ | 19 | 13 | Y | Y |
| Univ Rochester | 40 | 12 | Y | Y |
| Univ N Dakota | >94 | 11 | Y | |

As can be seen from the table, 11 existing DNP programs are housed in the top 15 schools of nursing as ranked by NIH funding or US News & World Report, and every one of the 15 top-ranked schools of nursing that offers the practice doctorate in nursing (DNP) also offers the research doctorate (PhD).

4.0 Degree Requirements

4.1 Overview

The DNP curriculum is based on *The Essentials of Doctoral Education for Advanced Nursing Practice* guidelines issued by the American Association of Colleges of Nursing in 2006 (Appendix A) and is in accord with the guidelines issued by nursing specialty practice organizations (e.g., nurse practitioners and nurse anesthetists). The curriculum has four main

foci: translation, transformation, leadership, and specialty practice (Figure 2). The common thread throughout the curriculum is data-driven, evidence-based work that leads to quality care and patient safety.

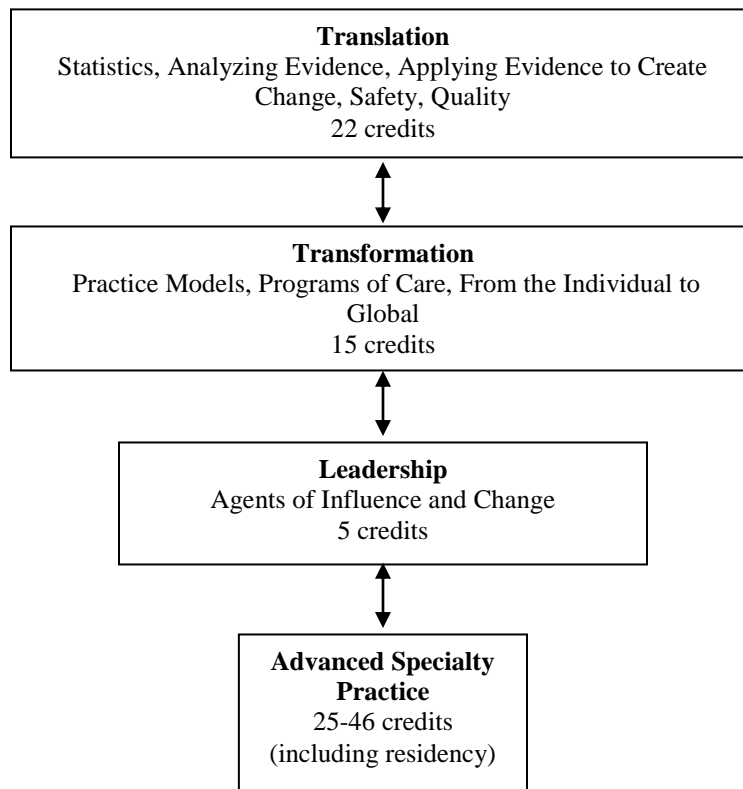


Figure 2. DNP Curriculum Foci (Excluding 6 Credits of Electives)

Translation: Content in this area prepares students to evaluate research to determine the credibility of the evidence presented; use research findings to inform practice, improve patient safety and initiate process improvements; and use existing and developing databases to guide decisions for groups of patients or health systems.

Transformation: Content in this area prepares students to move individuals and organizations from current reality to a new, desired state using collective group processes. This content includes innovation, planned and managed change, visionary leadership and strategic (program) planning, policy, inter-professional teamwork, community involvement, new practice models, quality (and outcome) metrics and measures, interoperable user-centric information systems, data driven decision-making and informed, involved, and health literate consumers.

Leadership: This content area prepares students to assume leadership positions in a specialty area through attainment and use of knowledge and skills in work across disciplines, negotiation, professional values, leadership concepts, professional and business ethics, and innovation in health care settings.

Advanced Practice Specialty: The focus in this area is on the knowledge and skills needed to practice in a specialty area of advanced practice. For example, students enrolled in the Family Nurse Practitioner specialty will take courses in physical assessment, diagnostic reasoning, pathophysiology, pharmacology, and care of pediatric, adult and geriatric patients as well as care of child bearing families.

Capstone Project Courses and Residency Course: The capstone project courses and the advanced practice residency are the integrating courses that will bring together the practice and scholarship elements of the Doctor of Nursing Practice degree. The specialty practice residency will allow students to integrate and use their knowledge and skills in the specialty area of practice in providing either direct or indirect care to patients. The capstone project will be a 4-semester scholarly project designed to address a practice issue affecting groups of patients, health care organizations or health care systems. Students will work with clinics, inpatient units, hospitals or health care systems to assess, plan, implement, and evaluate an initiative jointly agreed upon by the practice setting, the student, and the student's advisory committee.

Electives: The number of electives will vary based on the specialty, but at a minimum will be 6 credit hours. Students may pursue electives to add breadth and depth to their content area, or they may elect to pursue courses to support an education focus, a management focus or a health policy focus.

The minimum number of credits required for the DNP degree will be 73- 94 depending upon the advanced practice specialty area the student selects. Twenty-two credits are in translation, 15 credits in transformation, 5 credits in leadership and 25-46 credits in the advanced practice specialty. Six credits are devoted to electives. This credit requirement is in keeping with the other 59 schools of nursing with DNP programs, which have credit requirements that are +/-8 credits from those proposed in this application. In other practice doctorates (DPT, Pharm D, MD, DDS), the credits required are in the range of 126 -167. However, unlike the Pharm D, DPT, MD, and DDS, the DNP is not an entry into practice degree, and the total of the nursing credits obtained prior to the DNP (average of 60 credits) and those obtained for the DNP is in line with other practice doctorates.

The planned curriculum meets the guidelines established by the American Association of Colleges of Nursing (AACN) for Doctor of Nursing Practice programs (Appendix A). A comparison of AACN recommended knowledge domains with the courses for the DUSON DNP is shown in Appendix B.

Following university approval of the DNP, four of the new DNP courses will be developed in early spring 2008 to allow for matriculation of students in fall of 2008. In the first year (2008), the curriculum will be offered on a part-time basis to nurses with an earned master's degree in an advanced practice specialty. This will allow the faculty sufficient time to develop the remaining courses for the DNP during 2008. In the second and following years, students will be enrolled as full or part-time students. Depending on the specialty area of practice, the courses will be offered on campus, or in an executive format combining on-line sessions with on-campus intensive sessions. Statistics, research evaluation and application, evidence-based practice, translation and using databases for health care analysis are also recurring threads in the specialty advanced practice courses. A sample program of study for an advanced practice specialty in direct patient care (nurse practitioner) is in Appendix C.

For the capstone project, the student will have an advisory committee, composed of at least three faculty members who will oversee the project. Depending on the student's specialty practice area, a non-faculty member with expertise in the area may be named to the committee. At the completion of the scholarly project, the student will present his/her findings via an oral presentation. A minimum of one manuscript will be prepared for submission to a professional journal, and the student will also prepare abstracts for professional conferences. At the completion of the capstone project, an affirmative vote of the advisory committee indicating successful completion of the project will be required.

4.2 Student Admission Pathways

Students will enter the program through one of four pathways.

Post BSN Degree (minimum 73-94 credits): Although nurses with an earned BSN who are registered nurses will be eligible to enter the DNP program directly after completion of the BSN, we believe that most of them will enter after refining their skills and knowledge in clinical practice. At the time of application to the DNP program, they will be required to declare their advanced practice specialty area since at DUSON some specialty practice areas are more competitive than others based on available student slots in the specialty. We expect that after the first few years of the program, the majority of students will enter the program via the post BSN route.

Currently enrolled MSN students at DUSON (minimum of 34 credits beyond the master's degree): Students currently enrolled in one of our master's advanced practice specialties can enter the DNP program in the fall of 2009. Our current students have indicated an interest in the DNP, and we believe that a high number of students will use this pathway in the next three years. As more nurses use the BSN entry pathway, the number of currently enrolled MSN students entering the DNP program will taper off.

Post Master's Degree (a minimum of 34 credits): Students with an earned master's in nursing will be eligible to apply for the DNP if their master's degree is in an advanced practice specialty. Advanced practice is defined as direct care specialization (e.g., nurse practitioner, clinical nurse specialist, nurse anesthetist, nurse midwife) or indirect care specialization (e.g., nursing administration, nursing informatics). The curriculum for these students will recognize their attainment of the advanced practice specialty master's degree and allow up to 32 credits of specialty courses to be applied to the DNP. The students will be required to take additional courses to meet the minimum 73 credits for the DNP. Depending on their advanced practice specialty, students may or may not have prerequisites to meet prior to or concurrent with admission to the program. Given the number of advanced practice nurses who currently desire the terminal practice degree, we expect that in the initial years of the program, the majority of applications for admission will come from this group.

Post/concurrent PhD (a minimum of 34 credits): A very small number of students may desire to have terminal degrees in both practice and research (DNP/ PhD). For these students, an earned master's degree in an advanced practice specialty will be required prior to admission. Depending on their advanced practice specialty, students may or may not have prerequisites to meet prior to or concurrent with admission to the program.

4.3 DNP Terminal Objectives

The terminal objectives of the DNP program reflect integration and application of the knowledge and skills obtained in the program. Thus, at the completion of the program the DNP graduate will be able to:

- Demonstrate safe, effective, and efficient practice in a defined area of advanced nursing practice.
- Integrate nursing science, knowledge from ethics, biophysical, psychosocial, analytical and organizational and informational sciences as the basis for advanced nursing practice and new approaches to care delivery.
- Use analytic methods to critically appraise the literature and develop best practices.
- Implement and evaluate best practices to meet current and future needs of patients, communities and populations.
- Develop effective strategies to ensure safety and quality health care for patients and populations.
- Design, direct, and evaluate quality improvement methodologies to promote safe, timely, effective, efficient, equitable, and patient centered care.
- Analyze the cost-effectiveness of practice initiatives taking into account risks and improvements in health outcomes.
- Select and evaluate information systems and patient care technology, considering related ethical, regulatory and legal issues, to improve patient care and healthcare systems.
- Use major factors and policy triggers that influence health policy-making in order to influence policy; educate others about health disparities, cultural sensitivity and access to quality care; and advocate for social justice, equity, and ethical policies in all health care arenas.
- Employ consultative, collaborative and leadership skills on intra-professional and inter-professional teams to foster effective communication, enhance patient outcomes, and create change in complex health care delivery systems.

4.4 Programs of Study

As noted in 4.2, there are four pathways to the DNP; however, the two cohorts of nurses who are expected to be most interested in the DNP are BSN-prepared and MSN-prepared nurses. Since the AACN has recommended that the DNP become the terminal advanced practice specialty degree by 2015, BSN-prepared nurses who seek an advanced practice nursing specialty will look for DNP programs; thus this program at DUSON will be sought after as soon as it is approved and offered. The second cohort includes those advanced practice nurses with a master's degree who want to return to school for the post-master's DNP. All other DNP programs offer a transitional DNP option for advanced practice nurses with an earned master's degree, and we have designed a transitional DNP to meet the needs of this cohort. The transitional DNP recognizes attainment of the knowledge and skills to be an advanced practice nurse and focuses on the additional knowledge and skills needed for the DNP.

Two examples of programs of study are provided on the next several pages. The first example is a full-time plan of study for a BSN-prepared nurse who plans to select the advanced practice area of specialization of Family Nurse Practitioner in the Doctor of Nursing Practice Program. Full time matriculation plans will first be offered in the fall of 2009. The second example is a part-time plan for a master's prepared advanced practice nurse who has met the prerequisites for admission. We will first offer this plan in the fall of 2008.

Example 1. Full-Time Doctor of Nursing Practice: Family Nurse Practitioner Specialization

DNP FNP PROGRAM OF STUDY

Matriculation Plan (Full Time)

83 credits

| | Semester 1 | Semester 2 | Semester 3 |
|-------------------------------|--|--|--|
| Translation | N307 Research Methods - 3 credits | N308 Applied Statistics - 2 credits | N312 Research Utilization – 3 credits |
| Transformation | N301 Epi and Population Based Approaches to Health Care -3 credits | N502 Health Promotion and Disease Prevention- 3 Credits | |
| Leadership | | | Elective- 3 credits |
| Synthesis | | | |
| Specialty Practice | N332 Diagnostic Reasoning & Physical Assessment - 4 credits N330 Pathophysiology- 3 credits | N333 Managing Common Acute and Chronic Health Problems I- 3 credits 104 Practicum Hours N331 Clinical Pharmacology - 4 credits | N334 Managing Common Acute and Chronic Health Problems II - 3 credits 104 Practicum Hours |
| Total Semester Credits | 13 | 12 | 9 |

| | Semester 4 | Semester 5 | Semester 6 |
|-------------------------------|--|--|--|
| Translation | | | N6XX Data Driven Health Care Improvement 4 credits |
| Transformation | N303 Health Services Program Planning and Outcomes - 3 credits | | N6XX Health Systems Transformation 3 credits |
| Leadership | | | N6XX Effective Leadership – 2 credits |
| Synthesis | | N449 Family Nurse Practitioner Residency -4 credits 400 Practicum Hours N6XX Capstone, var 1-6 credits | |
| Specialty Practice | N441 Child Health in Family Care -4 credits 104 Practicum Hours N442 Sexual and Reproductive Health 4 credits; 104 Practicum Hours | | |
| Total Semester Credits | 11 | 4+ | 9 |

Total Practicum Hours - 816

| | Semester 7 | Semester 8 | Semester 9 |
|---------------------------------|---|---|--------------------------------|
| Translation | N6XX Evidence-Based Practice and Applied Statistics I - 4 credits | N6XX Evidence-Based Practice and Applied Statistics II- 3 credits | Elective -3 credits (T,T,L) |
| Transformation | N6XX Transforming the Nation's Health - 3 credits | | Elective -3 credits (T,T,L) |
| Leadership | | N402 Financial Management and Budget Planning - 3 credits | |
| Synthesis | N6XX Capstone - var 1-6 credits | N6XX Capstone – var 1-6 credits | N6XX Capstone -var 1-6 credits |
| Specialty Practice | | | |
| Total Semester Credits | 7+ | 6+ | 6+ |
| Total credits minimum 83 | | | |

Example 2. Initial Cohort – Fall 2008

Post-Master's Advanced Practice Specialty Curriculum (minimum 34 credits)

| Year 1 | Fall | Spring | Summer |
|-------------------------|---|--|--|
| Translation | N6XX Evidence-Based Practice and Applied Statistics I (4 credits) | N6XX Evidence-Based Practice and Applied Statistics II (3 credits) | N6XX Data Driven Health Care Improvement (4 credits) |
| Transformation | N6XX Transforming the Nation's Health (3 credits) | | |
| Leadership | | N402 Financial Management and Budget Planning (3 credits) | N6XX Effective Leadership (2 credits) |
| Synthesis | | N6XX Capstone (var 1-6 credits) | N6XX Capstone (var 1-6 credits) |
| Semester Credits | (7 credits) | (6+ credits) | (6+ credits) |

| Year 2 | Fall | Spring |
|-----------------------|--|---------------------|
| Translation | | |
| Transformation | N6XX Health Systems Transformation (3 credits) | |
| Leadership | | |
| Synthesis | N6XX Capstone (var 1-6 credits) | |
| Electives | Elective (3)* | Elective (3)* |
| Credits | (6+ credits) | (3+ credits) |

Total Credits: minimum 34

*Electives

Educator electives: N540 Principles of Clinical and Classroom Teaching, N541 Teaching and Curriculum Design, N542 Tests and Measurements, and mentored teaching practicum

Leadership electives: N401 Managing Complex Health Care Systems, N404 Health Economics, N405 Health Care Operations: Human Resources, Quality, Law, and Ethics, N407 Persuasive Presentations in Health Care, N408 Effective Meeting Management in Health Care

Informatics electives: N410 Informatics Issues in Nursing Systems, N411 Nursing Informatics Theory and Application, N412 Health Systems Project Management, N413 Informatics Infrastructure for Safe Patient Care

Other electives: Appendix G

Based on personal or professional circumstances, a small number of BSN-prepared nurses enrolled in the DNP may decide not to complete the DNP or to “step out” to practice in the advanced practice specialty in order to earn funds to return to complete the DNP. These students can leave the school with an earned master’s degree after completing the requirements for the Master of Science in Nursing degree (described in the School of Nursing Bulletin). Those students who complete the requirements for the DNP will also be awarded a Master of Science in Nursing degree.

4.5 Course Descriptions

4.5.1 Courses required of all DNP students:

(School of Nursing courses numbered 300– 600 are graduate level courses.)

N301 Population- Based Approaches to Health Care, 3 credits: Provides an overview of population-based approaches to assessment and evaluation of health needs. Selected theories provide a foundation for the use of scientific evidence for the management of population-based case. Enables the health care professional to make judgments about services or approaches in prevention, early detection and intervention, correction or prevention of deterioration, and the provision of palliative care.

N303 Health Services Program Planning & Outcomes Analysis, 3 credits: An analysis of theory and practice in the design, implementation, and evaluation of the outcomes of health services programs within a larger, integrated health care system. From a health services planning paradigm, students conduct organizational and community needs assessments, determine priorities, plan and monitor implementation, manage change, evaluate outcomes, and provide planning reports.

N307 Research Methods, 3 credits: Focuses on the research methods needed for the systematic investigation and expansion of nursing knowledge. Critical appraisal of research and development of a research proposal are covered.

N308 Applied Statistics, 2 credits: Emphasizes the application and interpretation of statistical procedures used in health care and nursing research. Data management and the relationship between research design and statistical techniques are also studied.

N312 Research Utilization in Advanced Nursing Practice, 3 credits: Students obtain skill in

developing research-based protocols and in using research methods to evaluate nursing care. Course requirements include completing a written research utilization proposal and presenting it orally to the class. This course can be taken in lieu of the thesis or non-thesis requirement.

N6XX Transforming the Nation's Health, 3 credits: Introduces students to systems thinking and principles for improving health at individual, population, national, and global levels. The transformative role of information infrastructure and electronic health records are studied in the context of improving both population outcomes and decision support for clinical practice. Transformational leadership for political and policy activism and consumer advocacy are emphasized. Emerging regional, national, and global health issues and trends are explored.

N6XX Data Driven Health Care Improvement, 4 credits: Designed to help students learn to select and manage data sources, information systems, and quality metrics for analyzing clinical data to influence health policy and improve patient safety and quality of care at all health system levels. Multi-professional teamwork and informatics solutions are emphasized in the context of a quality improvement culture. Critical thinking, professional ethics, and data quality are explored for a variety of analytic methods and quality metrics.

N402 Financial Management and Budget Planning, 3 credits: Designed for managers in complex organizations, this course focuses on the knowledge and skills needed by managers to plan, monitor, and evaluate budget and fiscal affairs for clinical decision making on a defined unit. Health care economics, personnel, and patient activities are analyzed from a budgetary and financial management perspective in an environment of regulation and market competition.

N6XXX Evidence-Based Practice and Applied Statistics I, 4 credits: This course enables the student to determine “best” practices through examining the type and level of evidence; evaluating the quality of the literature and applicability to practice; benchmarking; and exploring and evaluating applicable resources and databases. Emphasis is on descriptive, correlational, non-experimental, and qualitative studies; confidence intervals and estimation, odds ratios, sensitivity and specificity, confusion matrix, incidence, prevalence, non-parametric tests, and hypothesis testing.

N6XXX Evidence-Based Practice and Applied Statistics II, 3 credits: Focuses on linear regression, logistic regression, meta-analyses and qualitative meta-synthesis for the critical appraisal of evidence. Emphasizes the critical appraisal of the available research, evaluation of practice standards, procurement of resources for practice change, issues associated with data privacy, application of evidence to patient safety and systems improvement, recognition of organizational barriers to implementation of evidence-based practice (EBP), and measurement and evaluation of the outcomes of EBP.

N6XX Effective Leadership, 2 credits: Students synthesize theoretical leadership concepts with personal and professional values and gain an appreciation for the changing sociocultural context in which clinical leadership is practiced. Issues of power, creativity, innovation, ethics, and gender are addressed. Self reflection is used to develop interpersonal skills that enhance leadership.

N6XX Health Systems Transformation, 3 credits: Students analyze and synthesize innovative approaches to complex issues in health care systems using organizational theories. Concepts such as strategic management, market forces, politics, policy, and change management are used to assess and integrate how system level innovations are made in diverse health care settings. The influence and contributions of nurse leaders in transforming the health care system are highlighted.

N6XX Capstone Project, var 1-6 credits per semester, minimum of 6 credits required for graduation: In this year-long course, students incorporate and apply the knowledge and skills learned in the translation, transformation and leadership courses. The capstone project can take a variety of forms, such as practice change projects, quality and safety improvement projects, clinical program evaluations, and evaluation of practice models. Master's- prepared nurses will enter the program with a proposed topic for the capstone project based on their advanced practice specialty and with a commitment from a practice setting for the project. BSN-prepared nurses will develop the topic for the capstone project during their program of study. During the capstone course students refine their project idea and then plan, implement and evaluate the project. Minimum of 6 credits required for the course.

4.5.2 Examples of Electives:

Please refer to Appendix G.

4.5.3. Specialty Advanced Practice Courses (25-42 credits):

Please refer to Appendix F.

5.0 Resources

5.1 Space

The DNP program will be housed in the 59,000 square foot School of Nursing building on Trent Drive. There is sufficient student space, classroom space and space for the new faculty and administrative staff to be hired over the first 5 years of the program.

5.2 Faculty

DUSON currently has 50 regular rank faculty; 36 (72%) of whom are prepared at the doctoral level. The DUSON faculty names along with their credentials, academic preparation and clinical specialization are listed in Appendix D. These faculty will take the lead in the further development, implementation, and evaluation of the courses proposed in this document and will also serve as advisors to the DNP students.

The most recently hired faculty member's area of expertise is patient safety and quality improvement, a natural fit with the DNP curriculum. We plan to hire two additional faculty to provide more depth in the faculty ranks for the DNP program over the initial 5 year period of the program. We anticipate hiring a second faculty member for the DNP in 2008 (when the first class enters), and a third faculty member in 2010. These resources are fully accounted for in our 5-Year Student, Faculty and Resource Projections (Appendix F). In the projected extramural funding application (see Section 5.9), we will request funding for up to 40% of these proposed faculty salaries.

Our current master's prepared advanced practice faculty are committed to enrolling in a DNP program, and their completion of the DNP program at Duke or elsewhere will increase the number of faculty prepared to teach in the DUSON DNP program.

5.3 Staff

This year the school developed a plan to add additional FTEs to the admissions and financial aid office at the school; these additions will ensure that there are sufficient resources to handle the addition of the new students for the DNP program. The school will also hire an administrative assistant to assist the program director in handling the administrative aspects of the program.

5.4 Related Resources

The current student related resources of the School of Nursing (computer labs, simulation labs) will be fully available to DNP students. At Duke, the library resources are excellent, and the opportunities for clinically relevant capstone projects are broad within Duke Medicine and health care settings in the area.

5.5 Tuition

The School of Nursing financing is tuition driven. Students applying for the DNP program will pay the going rate for tuition, which in fall of 2008 is estimated to be \$1,000 per credit. Both need based and merit based scholarships will be available. Additionally, those nurses who work at least 30 hours a week at Duke Hospital during their educational program and who have at least one year tenure at the organization are eligible for the Registered Nurse Tuition Assistance Program (RNTAP). This program covers up to 90% of the Duke School of Nursing tuition.

5.6 Five-Year Student, Faculty and Resource Projections

The projections in Appendix F conservatively estimate an incremental operating deficit of \$69,000 during the first year of the new program with only eight students initially enrolled. However, after increasing enrollment by only ten students to a total of 18 in Year Two, the program is projected to operate at slightly better than breakeven. Once the program is fully subscribed with 65 students in Year Five (and after taking into account 25 students who are expected to enroll in the DNP instead of the MSN program), the projections indicate a stable go-forward surplus that will exceed \$484,000 annually and generate an incremental operating gross margin of greater than 40% for the School of Nursing. A HRSA proposal submission is expected that, if successful, will generate \$250,000 per year for three years in incremental funds to the School that were not included in the numbers given above.

5.7 Actual and Potential External Funding

In November 2007, once the proposed DNP degree has been approved by Duke University, the School of Nursing will submit to the Health Resources and Services Administration (HRSA) (under the U.S. Department of Health and Human Services) an application for funding under the Advanced Education for Nurses call for Proposals in Nov of 2007. HRSA training grants have been instrumental in providing financial support for new initiatives at DUSON. The school currently has six active grants funding master's specialty programs in nursing. The grants are for 3 years with competitive renewal for an additional 2 years.

6.0 Students

6.1 Overview

Current anecdotal data indicate a strong interest by BSN and MSN nurses in the DNP program. Interest was heightened in 2004 when the AACN recommended that all advanced practice nurses be prepared at the DNP level by 2015. We are now preparing a statewide survey to obtain detailed data on the numbers and types of nurses interested in the DNP.

Our initial target population for DNP students will be nurses with an earned master's in nursing who are teaching and/or working in an advanced practice specialty (e.g., clinical nurse specialist, nurse practitioner, nurse administrator, or specialist in nursing informatics). The critical question is, "If we develop the program, will they enroll?" Focus groups held at Duke Hospital indicate a high degree of interest in the program from master's prepared advanced practice nurses (N=70), and our current faculty who are master's prepared in an advanced practice specialty (N=14) have voiced a strong desire to return to school for the DNP. Also, 16 MSN-prepared nurses from other states have already expressed interest in the program.

Our second target population will be students currently enrolled in our master's curriculum, followed by BSN-prepared nurses who seek graduate work in an advanced nursing practice specialty.

After the first year of the program, we will admit applicants with an earned bachelor's degree in nursing to the DNP. These students must meet the DNP admission requirements (see Section 6.2) and identify an advanced practice specialty that we offer at DUSON.

Our planned enrollment for the initial 5 years is summarized in Table 2 and is reflected in Appendix G.

Table 2. Planned Enrollment for the DNP for the First 5 Years

| Year | New Matriculates | Continuing Students | Total DNP Enrollment |
|---------------------------|-------------------------|----------------------------|-----------------------------|
| Fall 2008 | 8 | | 8 |
| Fall 2009 | 10 | 8 | 18 |
| Fall 2010 | 15 | 18 | 33 |
| Fall 2011 | 20 | 25 | 45 |
| Fall 2012 and there after | 30 | 35 | 65 |

6.2 Prerequisites for Admission

A. For applicants with a BSN:

1. Earned BSN from a nationally accredited program
2. GPA 3.0 or above on a 4.0 scale
3. GRE
4. Resume or CV
5. Current licensure as a registered nurse in the state in which practice will occur
6. Undergraduate statistics course
7. Transcripts from all degree granting institutions
8. Three letters of reference

9. Personal statement
10. Portfolio of professional practice that highlights past education, professional and community activities, and scholarship, including abstracts, presentations, and publications

B. For applicants with an MSN:

1. Earned master's in nursing in an advanced practice specialty from a nationally accredited program
2. Certification as an advanced practice nurse (if applicable)
3. GPA 3.0 or above on a 4.0 scale
4. GRE
5. Resume or CV
6. Current licensure as a registered nurse in the state in which practice will occur
7. Graduate inferential statistics course
8. Graduate research methodology course
9. Transcripts from all degree granting institutions
10. Three letters of reference
11. Personal statement
12. Portfolio of professional practice that highlights past education, professional and community activities, and scholarship, including abstracts, presentations, and publications

7.0 Opportunities Available for Graduates

Graduates of the DUSON DNP will function as advanced practice nurses and clinical leaders in service and academic settings in North Carolina and across the nation. The AACN has defined the DNP broadly so that there is career flexibility, allowing movement between clinical practice, administration and academia. In conversations with other DNP program directors, the common theme is that graduates (Post Master's DNP) have a different level of practice and leadership. They become change agents within their organization.

Clinical Practice: Those graduates who are prepared in an advanced practice specialty to provide either direct or indirect patient care will be eligible to sit for the national certification exam (as applicable) and will have the knowledge and background in epidemiology, biostatistics, health care practices, health care finance and policy, evidence-based practice and informatics to serve as change agents and provide leadership in the practice environment. Their specialty practice will be informed by their ability to inform, develop, transform, and evaluate core competencies in clinical prevention, disease management, and population based care in complex health systems and diverse communities. Using literature from clinical and community-based trials and interventions, nurse practitioners will use evidence-based methods to plan and implement improved quality, safety, and efficiency in care to individuals, communities, and populations. They will look broadly at patient sensitive indicators and determine how interventions and changes in practice affect the indicators.

Service: In the service sector, potential employment opportunities for the DNP include positions as owner, director, partner of a clinical practice in an ambulatory setting; Chief Nursing and Patient Care Officer; an Associate Chief Nursing Officer for Education, Clinical Practice, Clinical Quality, or Advanced Practice; Vice President of Nursing Services; Chief, Patient Safety Officer; Director, Accreditation and Regulatory Affairs; and Director, Research, Quality, and Outcomes. Graduates may have joint practice-faculty appointments with schools of nursing.

Academia: Part of the current nursing shortage is attributable to the shortage of nursing faculty, which limits the number of students who can be admitted to schools of nursing. Further, the average age of nursing faculty is 59 years; thus within 10 years there will be a mass exodus of faculty from schools of nursing. The number of PhD-prepared faculty is not increasing. Indeed, the number of graduates with research doctorates in nursing has remained steady for the past decade at less than 400 annually, and not all of these graduates enter academia; some elect to pursue careers in service, government, or industry. Advanced practice nurses need to be taught by those who understand advanced practice nursing. Advanced practice nurses prepared at the DNP level will be valuable faculty members who can pass on their knowledge to the next generation of nurses. In addition, they will bring a wealth of clinical expertise and knowledge and a deep understanding of the factors required to translate research into practice and change practice to improve health outcomes.

8.0 Administrative Oversight

The program will be under the direction of the DNP program administrator, who will work closely with the Associate Dean for Academic Affairs on course scheduling and faculty assigned to teach courses. The Capstone projects will have doctorally prepared faculty advisors as chairpersons of committees.

9.0 Evaluation

DUSON has a Master Evaluation Plan for all degree granting programs in the school (ABSN, MSN and PhD). The DNP will be integrated into the Master Evaluation Plan. This plan is briefly summarized in Table 3.

Table 3. Evaluation Measures in the Master Evaluation Program for the Duke University School of Nursing.

| | Student Factors | Evaluation Committee | Employer |
|--|--|---|--|
| Faculty and instructor evaluation of courses and course delivery | Student performance on tests/papers | Evaluation of course content, course delivery methods, and sequencing | Roles and responsibilities of students in the work setting |
| Faculty evaluation of clinical practice sites | Student clinical performance | Evaluation of clinical sites used for student rotations | Performance of students in residency and post graduation |
| Student evaluation of courses and course delivery | Student self-evaluation | Review of student evaluations | Evaluation of student professional involvement |
| Student evaluation of instructors | Overall student assessment of faculty | Evaluation of faculty, preceptors | Suggestions for revision of program content |
| Student evaluation of clinical practice sites | Student clinical practice assessment | Evaluation of job placement post graduation | Tenure of nurses at their work setting |
| | | Input on changes in practice locally, regionally and nationally | Input from Community Advisory Board for Minority Student Recruitment |
| | Feedback from clinical preceptors | Evaluation of applicant pool with revision in recruitment and admission protocols as needed | Employer evaluation of students at 1, 3, and 5 years post graduation |
| Student exit interviews and program assessment at graduation | Student assessment of progress in specialty at 1, 3, and 5 years post graduation | Analysis of ethnicity, income and locality of applicant inquirers | Analysis of ethnicity, income and locality of applicant inquirers |
| | Applicant ethnicity, income, and locality effect on admission and matriculation | | Evaluation of employment opportunities for graduates |

10.0 Accreditation

The Commission on Collegiate Nursing Education (CCNE) has accredited the DUSON ABSN program through 2008 and the MSN program through 2012. CCNE accreditation of DNP programs is currently being developed and will begin in 2008. A DUSON nurse practitioner sits on the CCNE accreditation board.

11.0 Timeline for Implementation

We anticipate graduating the first DNP students in the spring of 2010. The timeline to reach that goal is detailed below.

| Semester/Year | Metric |
|----------------------|--|
| Summer 2007 | Approval by DUSON faculty Approval by Duke Medicine |
| Fall 2007 | University review and approval Training grant proposal submitted Course development |
| Spring 2008 | Course development Policy and procedure development Student recruiting begins |
| Summer 2008 | Course and policy refinement |
| Fall 2008 | Post MSN students enter (1 st cohort) Course evaluations and refinement |
| Fall 2009 | Current MSN, BSN and Post Master's students enter (2 nd cohort) Course evaluations and refinement |
| Spring 2010 | First cohort graduates Course evaluations and refinement |

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Appendices

- A. *The Essentials of Doctoral Education for Advanced Nursing Practice*
- B. Comparison of new DNP courses with the AACN Essentials of Doctor of Nursing Practice knowledge domains
- C. Planned Full-time curriculum for Post BSN Applicants interested in the DNP with FNP Advanced Practice Specialty
- D. Primary Faculty Profiles
- E. Five-year Student, Faculty and Resource projection
- F. Advanced Practice Specialty Courses
- G. Potential electives

Appendix A: *The Essentials of Doctoral Education for Advanced Nursing Practice*

The following *DNP Essentials* outline the curricular elements and competencies that must be present in programs conferring the Doctor of Nursing Practice degree. The DNP is a degree title, like the PhD or MSN, and does not designate in what specialty a graduate is prepared. DNP graduates will be prepared for a variety of nursing practice roles. The *DNP Essentials* delineated here address the foundational competencies that are core to all advanced nursing practice roles. However, the depth and focus of the core competencies will vary based on the particular role for which the student is preparing. For example, students preparing for organizational leadership or administrative roles will have increased depth in organizational and systems' leadership; those preparing for policy roles will have increased depth in health care policy; and those preparing for APN roles (nurse practitioners, clinical nurse specialists, nurse anesthetists, and nurse midwives) will have more specialized content in an area of advanced practice nursing.

Additionally, it is important to understand that the delineation of these competencies should not be interpreted to mean that a separate course for each of the *DNP Essentials* should be offered. Curricula will differ in emphases based on the particular specialties for which students are being prepared.

The DNP curriculum is conceptualized as having two components:

1. DNP Essentials 1 through 8 are the foundational outcome competencies deemed essential for all graduates of a DNP program regardless of specialty or functional focus.
2. Specialty competencies/content prepare the DNP graduate for those practice and didactic learning experiences for a particular specialty. **Competencies, content, and practica experiences needed for specific roles in specialty areas are delineated by national specialty nursing organizations.**

The *DNP Essentials* document outlines and defines the eight foundational Essentials and provides some introductory comments on specialty competencies/content. The specialized content, as defined by specialty organizations, complements the areas of core content defined by the *DNP Essentials* and constitutes the major component of DNP programs. DNP curricula should include these two components as appropriate to the specific advanced nursing practice specialist being prepared. Additionally, the faculty of each DNP program has the academic freedom to create innovative and integrated curricula to meet the competencies outlined in the *Essentials* document.

Essential I: Scientific Underpinnings for Practice

The practice doctorate in nursing provides the terminal academic preparation for nursing practice. The scientific underpinnings of this education reflect the complexity of practice at the doctoral level and the rich heritage that is the conceptual foundation of nursing. The discipline of nursing is focused on:

1. The principles and laws that govern the life-process, well-being, and optimal function of human beings, sick or well;
2. The patterning of human behavior in interaction with the environment in normal life events and critical life situations;

3. The nursing actions or processes by which positive changes in health status are affected; and
4. The wholeness or health of human beings recognizing that they are in continuous interaction with their environments (Donaldson & Crowley, 1978; Fawcett, 2005; Gortner, 1980).

DNP graduates possess a wide array of knowledge gleaned from the sciences and have the ability to translate that knowledge quickly and effectively to benefit patients in the daily demands of practice environments (Porter-O'Grady, 2003). Preparation to address current and future practice issues requires a strong scientific foundation for practice. The scientific foundation of nursing practice has expanded and includes a focus on both the natural and social sciences. These sciences that provide a foundation for nursing practice include human biology, genomics, the science of therapeutics, the psychosocial sciences, as well as the science of complex organizational structures. In addition, philosophical, ethical, and historical issues inherent in the development of science create a context for the application of the natural and social sciences. Nursing science also has created a significant body of knowledge to guide nursing practice and has expanded the scientific underpinnings of the discipline. Nursing science frames the development of middle range theories and concepts to guide nursing practice. Advances in the foundational and nursing sciences will occur continuously and nursing curricula must remain sensitive to emerging and new scientific findings to prepare the DNP for evolving practice realities.

The DNP program prepares the graduate to:

1. Integrate nursing science with knowledge from ethics, the biophysical, psychosocial, analytical, and organizational sciences as the basis for the highest level of nursing practice.
2. Use science-based theories and concepts to:
 - a. determine the nature and significance of health and health care delivery phenomena;
 - b. describe the actions and advanced strategies to enhance, alleviate, and ameliorate health and health care delivery phenomena as appropriate; and
 - c. evaluate outcomes.
3. Develop and evaluate new practice approaches based on nursing theories and theories from other disciplines.

Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking

Organizational and systems leadership are critical for DNP graduates to improve patient and healthcare outcomes. Doctoral level knowledge and skills in these areas are consistent with nursing and health care goals to eliminate health disparities and to promote patient safety and excellence in practice.

DNP graduates' practice includes not only direct care but also a focus on the needs of a panel of patients, a target population, a set of populations, or a broad community. These graduates are

distinguished by their abilities to conceptualize new care delivery models that are based in contemporary nursing science and that are feasible within current organizational, political, cultural, and economic perspectives.

Graduates must be skilled in working within organizational and policy arenas and in the actual provision of patient care by themselves and/or others. For example, DNP graduates must understand principles of practice management, including conceptual and practical strategies for balancing productivity with quality of care. They must be able to assess the impact of practice policies and procedures on meeting the health needs of the patient populations with whom they practice. DNP graduates must be proficient in quality improvement strategies and in creating and sustaining changes at the organizational and policy levels. Improvements in practice are neither sustainable nor measurable without corresponding changes in organizational arrangements, organizational and professional culture, and the financial structures to support practice. DNP graduates have the ability to evaluate the cost effectiveness of care and use principles of economics and finance to redesign effective and realistic care delivery strategies. In addition, DNP graduates have the ability to organize care to address emerging practice problems and the ethical dilemmas that emerge as new diagnostic and therapeutic technologies evolve. Accordingly, DNP graduates are able to assess risk and collaborate with others to manage risks ethically, based on professional standards.

Thus, advanced nursing practice includes an organizational and systems leadership component that emphasizes practice, ongoing improvement of health outcomes, and ensuring patient safety. In each case, nurses should be prepared with sophisticated expertise in assessing organizations, identifying systems' issues, and facilitating organization-wide changes in practice delivery. In addition, advanced nursing practice requires political skills, systems thinking, and the business and financial acumen needed for the analysis of practice quality and costs.

The DNP program prepares the graduate to:

1. Develop and evaluate care delivery approaches that meet current and future needs of patient populations based on scientific findings in nursing and other clinical sciences, as well as organizational, political, and economic sciences.
2. Ensure accountability for quality of health care and patient safety for populations with whom they work.
3. Use advanced communication skills/processes to lead quality improvement and patient safety initiatives in health care systems.
4. Employ principles of business, finance, economics, and health policy to develop and implement effective plans for practice-level and/or system-wide practice initiatives that will improve the quality of care delivery.
5. Develop and/or monitor budgets for practice initiatives.
6. Analyze the cost-effectiveness of practice initiatives accounting for risk and improvement of health care outcomes.
7. Demonstrate sensitivity to diverse organizational cultures and populations, including patients and providers.
8. Develop and/or evaluate effective strategies for managing the ethical dilemmas inherent in patient care, the health care organization, and research.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

Scholarship and research are the hallmarks of doctoral education. Although basic research has been viewed as the first and most essential form of scholarly activity, an enlarged perspective of scholarship has emerged through alternative paradigms that involve more than discovery of new knowledge (Boyer, 1990). These paradigms recognize that (1) the scholarship of discovery and integration “reflects the investigative and synthesizing traditions of academic life” (Boyer, p. 21); (2) scholars give meaning to isolated facts and make connections across disciplines through the scholarship of integration; and (3) the scholar applies knowledge to solve a problem via the scholarship of application (referred to as the scholarship of practice in nursing). This application involves the translation of research into practice and the dissemination and integration of new knowledge, which are key activities of DNP graduates. The scholarship of application expands the realm of knowledge beyond mere discovery and directs it toward humane ends. Nursing practice epitomizes the scholarship of application through its position where the sciences, human caring, and human needs meet and new understandings emerge.

Nurses have long recognized that scholarly nursing practice is characterized by the discovery of new phenomena and the application of new discoveries in increasingly complex practice situations. The integration of knowledge from diverse sources and across disciplines, and the application of knowledge to solve practice problems and improve health outcomes are only two of the many ways new phenomena and knowledge are generated other than through research (AACN, 1999; Diers, 1995; Palmer, 1986; Sigma Theta Tau International, 1999). Research-focused doctoral programs in nursing are designed to prepare graduates with the research skills necessary for discovering new knowledge in the discipline. In contrast, DNP graduates engage in advanced nursing practice and provide leadership for evidence-based practice. This requires competence in knowledge application activities: the translation of research in practice, the evaluation of practice, improvement of the reliability of health care practice and outcomes, and participation in collaborative research (DePalma & McGuire, 2005). Therefore, DNP programs focus on the translation of new science, its application and evaluation. In addition, DNP graduates generate evidence through their practice to guide improvements in practice and outcomes of care.

The DNP program prepares the graduate to:

1. Use analytic methods to critically appraise existing literature and other evidence to determine and implement the best evidence for practice.
2. Design and implement processes to evaluate outcomes of practice, practice patterns, and systems of care within a practice setting, health care organization, or community against national benchmarks to determine variances in practice outcomes and population trends.
3. Design, direct, and evaluate quality improvement methodologies to promote safe, timely, effective, efficient, equitable, and patient-centered care.
4. Apply relevant findings to develop practice guidelines and improve practice and the practice environment.
5. Use information technology and research methods appropriately to:
 - a. collect appropriate and accurate data to generate evidence for nursing practice
 - b. inform and guide the design of databases that generate meaningful evidence for nursing practice

- c. analyze data from practice
 - d. design evidence-based interventions
 - e. predict and analyze outcomes
 - f. examine patterns of behavior and outcomes
 - g. identify gaps in evidence for practice.
6. Function as a practice specialist/consultant in collaborative knowledge-generating research.
 7. Disseminate findings from evidence-based practice and research to improve healthcare outcomes.

Essential #IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

DNP graduates are distinguished by their abilities to use information systems/technology to support and improve patient care and healthcare systems, and provide leadership within healthcare systems and/or academic settings. Knowledge and skills related to information systems/technology and patient care technology prepare the DNP graduate to apply new knowledge, manage individual and aggregate level information, and assess the efficacy of patient care technology appropriate to a specialized area of practice. DNP graduates also design, select, and use information systems/technology to evaluate programs of care, outcomes of care, and care systems. Information systems/technology provide a mechanism to apply budget and productivity tools, practice information systems and decision supports, and web-based learning or intervention tools to support and improve patient care.

DNP graduates must also be proficient in the use of information systems/technology resources to implement quality improvement initiatives and support practice and administrative decision-making. Graduates must demonstrate knowledge of standards and principles for selecting and evaluating information systems and patient care technology, and related ethical, regulatory, and legal issues.

The DNP program prepares the graduate to:

1. Design, select, use, and evaluate programs that evaluate and monitor outcomes of care, care systems, and quality improvement including consumer use of health care information systems.
2. Analyze and communicate critical elements necessary to the selection, use and evaluation of health care information systems and patient care technology.
3. Demonstrate the conceptual ability and technical skills to develop and execute an evaluation plan involving data extraction from practice information systems and databases.
4. Provide leadership in the evaluation and resolution of ethical and legal issues within healthcare systems relating to the use of information, information technology, communication networks, and patient care technology.
5. Evaluate consumer health information sources for accuracy, timeliness, and appropriateness.

Essential V: Health Care Policy for Advocacy in Health Care

Health care policy--whether it is created through governmental actions, institutional decision making, or organizational standards--creates a framework that can facilitate or impede the delivery of health care services or the ability of the provider to engage in practice to address health care needs. Thus, engagement in the process of policy development is central to creating a health care system that meets the needs of its constituents. Political activism and a commitment to policy development are central elements of professional nursing practice, and the DNP graduate has the ability to assume a broad leadership role on behalf of the public as well as the nursing profession (Ehrenreich, 2002). Health policy influences multiple care delivery issues, including health disparities, cultural sensitivity, ethics, the internationalization of health care concerns, access to care, quality of care, health care financing, and issues of equity and social justice in the delivery of health care.

DNP graduates are prepared to design, influence, and implement health care policies that frame health care financing, practice regulation, access, safety, quality, and efficacy (IOM, 2001). Moreover, the DNP graduate is able to design, implement and advocate for health care policy that addresses issues of social justice and equity in health care. The powerful practice experiences of the DNP graduate can become potent influencers in policy formation. Additionally, the DNP graduate integrates these practice experiences with two additional skill sets: the ability to analyze the policy process and the ability to engage in politically competent action (O'Grady, 2004).

The DNP graduate has the capacity to engage proactively in the development and implementation of health policy at all levels, including institutional, local, state, regional, federal, and international levels. DNP graduates as leaders in the practice arena provide a critical interface between practice, research, and policy. Preparing graduates with the essential competencies to assume a leadership role in the development of health policy requires that students have opportunities to contrast the major contextual factors and policy triggers that influence health policy-making at the various levels. The DNP program prepares the graduate to:

1. Critically analyze health policy proposals, health policies, and related issues from the perspective of consumers, nursing, other health professions, and other stakeholders in policy and public forums.
2. Demonstrate leadership in the development and implementation of institutional, local, state, federal, and/or international health policy.
3. Influence policy makers through active participation on committees, boards, or task forces at the institutional, local, state, regional, national, and/or international levels to improve health care delivery and outcomes.
4. Educate others, including policy makers at all levels, regarding nursing, health policy, and patient care outcomes.
5. Advocate for the nursing profession within the policy and healthcare communities.
6. Develop, evaluate, and provide leadership for health care policy that shapes health care financing, regulation, and delivery.
7. Advocate for social justice, equity, and ethical policies within all healthcare arenas.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes¹

Today's complex, multi-tiered health care environment depends on the contributions of highly skilled and knowledgeable individuals from multiple professions. In order to accomplish the IOM mandate for safe, timely, effective, efficient, equitable, and patient-centered care in a complex environment, healthcare professionals must function as highly collaborative teams (AACN, 2004; IOM, 2003; O'Neil, 1998). DNP members of these teams have advanced preparation in the interprofessional dimension of health care that enable them to facilitate collaborative team functioning and overcome impediments to interprofessional practice. Because effective interprofessional teams function in a highly collaborative fashion and are fluid depending upon the patients' needs, leadership of high performance teams changes. Therefore, DNP graduates have preparation in methods of effective team leadership and are prepared to play a central role in establishing interprofessional teams, participating in the work of the team, and assuming leadership of the team when appropriate.

¹ The use of the term "collaboration" is not meant to imply any legal or regulatory requirements or implications.

The DNP program prepares the graduate to:

1. Employ effective communication and collaborative skills in the development and implementation of practice models, peer review, practice guidelines, health policy, standards of care, and/or other scholarly products.
2. Lead interprofessional teams in the analysis of complex practice and organizational issues.
3. Employ consultative and leadership skills with intraprofessional and interprofessional teams to create change in health care and complex healthcare delivery systems.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

Clinical prevention is defined as health promotion and risk reduction/illness prevention for individuals and families. *Population health* is defined to include aggregate, community, environmental/occupational, and cultural/socioeconomic dimensions of health. Aggregates are groups of individuals defined by a shared characteristic such as gender, diagnosis, or age. These framing definitions are endorsed by representatives of multiple disciplines including nursing (Allan et al., 2004).

The implementation of clinical prevention and population health activities is central to achieving the national goal of improving the health status of the population of the United States. Unhealthy lifestyle behaviors account for over 50 percent of preventable deaths in the U.S., yet prevention interventions are underutilized in health care settings. In an effort to address this national goal, *Healthy People 2010* supported the transformation of clinical education by creating an objective to increase the proportion of schools of medicine, nursing, and other health professionals that have a basic curriculum that includes the core competencies in health promotion and disease

prevention (Allan et al., 2004; USHHS, 2000). DNP graduates engage in leadership to integrate and institutionalize evidence-based clinical prevention and population health services for individuals, aggregates, and populations.

Consistent with these national calls for action and with the longstanding focus on health promotion and disease prevention in nursing curricula and roles, the DNP graduate has a foundation in clinical prevention and population health. This foundation will enable DNP graduates to analyze epidemiological, biostatistical, occupational, and environmental data in the development, implementation, and evaluation of clinical prevention and population health. Current concepts of public health, health promotion, evidence-based recommendations, determinants of health, environmental/occupational health, and cultural diversity and sensitivity guide the practice of DNP graduates. In addition emerging knowledge regarding infectious diseases, emergency/disaster preparedness, and intervention frame DNP graduates' knowledge of clinical prevention and population health.

The DNP program prepares the graduate to:

1. Analyze epidemiological, biostatistical, environmental, and other appropriate scientific data related to individual, aggregate, and population health.
2. Synthesize concepts, including psychosocial dimensions and cultural diversity, related to clinical prevention and population health in developing, implementing, and evaluating interventions to address health promotion/disease prevention efforts, improve health status/access patterns, and/or address gaps in care of individuals, aggregates, or populations.
3. Evaluate care delivery models and/or strategies using concepts related to community, environmental and occupational health, and cultural and socioeconomic dimensions of health.

Essential VIII: Advanced Nursing Practice

The increased knowledge and sophistication of healthcare has resulted in the growth of specialization in nursing in order to ensure competence in these highly complex areas of practice. The reality of the growth of specialization in nursing practice is that no individual can master all advanced roles and the requisite knowledge for enacting these roles. DNP programs provide preparation within distinct specialties that require expertise, advanced knowledge, and mastery in one area of nursing practice. A DNP graduate is prepared to practice in an area of specialization within the larger domain of nursing. Indeed, this distinctive specialization is a hallmark of the DNP.

Essential VIII specifies the foundational practice competencies that cut across specialties and are seen as requisite for DNP practice. All DNP graduates are expected to demonstrate refined assessment skills and base practice on the application of biophysical, psychosocial, behavioral, sociopolitical, cultural, economic, and nursing science as appropriate in their area of specialization.

DNP programs provide learning experiences that are based in a variety of patient care settings, such as hospitals, long-term care settings, home health, and/or community settings. These

learning experiences should be integrated throughout the DNP program of study, to provide additional practice experiences beyond those acquired in a baccalaureate nursing program. These experiential opportunities should be sufficient to inform practice decisions and understand the patient care consequences of decisions. Because a variety of differentiated roles and positions may be held by the DNP graduate, role preparation for specialty nursing practice, including legal and regulatory issues, is part of every DNP program's curricula.

The DNP program prepares the graduate to:

1. Conduct a comprehensive and systematic assessment of health and illness parameters in complex situations, incorporating diverse and culturally sensitive approaches.
2. Design, implement, and evaluate therapeutic interventions based on nursing science and other sciences.
3. Develop and sustain therapeutic relationships and partnerships with patients (individual, family or group) and other professionals to facilitate optimal care and patient outcomes.
4. Demonstrate advanced levels of clinical judgment, systems thinking, and accountability in designing, delivering, and evaluating evidence-based care to improve patient outcomes.
5. Guide, mentor, and support other nurses to achieve excellence in nursing practice.
6. Educate and guide individuals and groups through complex health and situational transitions.
7. Use conceptual and analytical skills in evaluating the links among practice, organizational, population, fiscal, and policy issues.

**Appendix B: Comparison of New DNP Courses with the AACN *DNP Essentials*
8 Knowledge Domains.**

| AACN Knowledge Domains | DNP Courses* |
|--|---|
| 1. Scientific underpinnings of practice | N330 Selected Topics in Pathophysiology, N331 Clinical Pharmacology and Interventions for Advanced Nursing Practice, N307 Research Methods, N308 Applied Statistics, N312 Research Utilization, N315 Directed Research, N6XX Evidence Based Practice and Applied Statistics I, N6XX Evidence Based Practice and Applied Statistics II, Elective |
| 2. Organizational and systems leadership for quality improvement and systems thinking | N303 Health Services Program Planning and Outcome Analysis, N6XX Transforming the Nation’s Health, N402 Financial Management and Budget Planning, Elective |
| 3. Clinical scholarship and analytical methods for evidence-based practice | N307 Research Methods, N308 Applied Statistics, N312 Research Utilization, N315 Directed Research, N6XX Evidence Based Practice and Applied Statistics I, N6XX Evidence Based Practice and Applied Statistics II, Elective |
| 4. Information system/technology and patient care technology for the improvement and transformation of health care | N6XX Data driven Health Care improvement , N6XX Health Systems Transformation, Elective |
| 5. Health care policy for advocacy in health care | N6XX Transforming the nation’s health, N6XX Health Systems Transformation, Elective |
| 6. Interprofessional collaboration for improving patient and population health outcomes | N6XX EBPI, N6XX EBPII, N6XX Transforming the nation’s health, N6XX Data driven Health Care improvement , N6XX Health Systems Transformation, Elective |
| 7. Clinical prevention and population health for improving the nation’s health | N301 Population-Based Approaches to Health Care, N502 Health Promotion and Disease Prevention, N6XX Health Systems Transformation, Elective |
| 8. Advanced Nursing Practice | Courses selected depend on specialty focus See Appendix XX for complete specialty course listings. |

* Electives will be in one or more of the knowledge domains

**Appendix C: Planned Full-time Curriculum for Post BSN Applicants Interested in DNP
with FNP Advanced Practice Specialty**

DNP FNP PROGRAM OF STUDY
Matriculation Plan (Full Time)
83 credits

| | Semester 1 | Semester 2 | Semester 3 |
|-------------------------------|--|--|---|
| Translation | N307 Research Methods, 3 credits | N308 Applied Statistics, 2 credits | N312 Research Utilization, 3 credits |
| Transformation | N301 Epi and Population Based Approaches to Health Care, 3 credits | N502 Health Promotion and Disease Prevention, 3 Credits | |
| Leadership | | | Elective- 3 credits |
| Synthesis | | | |
| Specialty Practice | N332 Diagnostic Reasoning & Physical Assessment, 4 credits | N333 Managing Common Acute and Chronic Health Problems I, 3 credits 104 Practicum Hours | N334 Managing Common Acute and Chronic Health Problems II, 3 credits 104 Practicum Hours |
| | N330 Pathophysiology, 3 credits * | N331 Clinical Pharmacology, 4 credits * | |
| Total Semester Credits | 13 | 12 | 9 |

| | Semester 4 | Semester 5 | Semester 6 |
|------------------------------------|---|---|---|
| Translation | | | N6XX Data Driven Health Care Improvement 4 credits |
| Transformation | N303 Health Services Program Planning and Outcome, 3 credits | | N6XX Health Systems Transformation 3 credits |
| Leadership | | | N6XX Effective Leadership, 2 credits |
| Synthesis | | N449 Family Nurse Practitioner Residency, 4 credits 400 Practicum Hours N6XX Capstone, var 1-6 credits | |
| Specialty Practice | N441 Child Health in Family Care, 4 credits 104 Practicum Hours N442 Sexual and Reproductive Health, 4 credits; 104 Practicum Hours | | |
| Total Semester Credits | 11 | 4+ | 9 |
| Total Practicum Hours - 816 | | | |

| | Semester 7 | Semester 8 | Semester 9 |
|---------------------------------|--|---|--------------------------------|
| Translation | N6XX Evidence Based Practice and Applied Statistics I, 4 credits | N6XX Evidence Based Practice and Applied Statistics II, 3 credits | Elective, 3 credits (T,T,L) |
| Transformation | N6XX Transforming the Nation's Health, 3 credits | | Elective, 3 credits (T,T,L) |
| Leadership | | N402 Financial Management and Budget Planning, 3 credits | |
| Synthesis | N6XX Capstone, var 1-6 credits | N6XX Capstone, var 1-6 credits | N6XX Capstone, var 1-6 credits |
| Specialty Practice | | | |
| Total Semester Credits | 7+ | 6+ | 6+ |
| Total credits minimum 83 | | | |

Appendix D. Primary Faculty Profiles

Ruth A. Anderson, PhD, RN, FAAN, Professor, Chair of the PhD Program, Director of the Nursing and Healthcare Leadership specialties and Director of the Pilot-Feasibility Studies Core of the Trajectories of Aging and Care (TRAC) Center, received her BSN from Stockton State College in New Jersey, her MSN in Gerontological Nursing and MA in Social Gerontology from the University of Pennsylvania and her PhD in nursing from The University of Texas at Austin. Dr. Anderson's research uses complexity science to bring together the constructs of relationship and interaction, organizational structure, resource allocation and health care outcomes. She is currently funded by NIH/National Institute of Nursing Research for comparative, multiple case studies of nursing homes to identify the relationship patterns and nursing management practices that relate to quality of care. Through this work, she is developing interventions to improve outcomes for residents in nursing homes. Dr. Anderson contributes frequently to the professional literature in nursing and health care management. She is Chair of the Editorial Board for Health Care Management Review and serves as a manuscript reviewer for numerous journals. She has extensive experience in teaching graduate courses in human and financial management and outcomes in health care systems.

Donald (Chip) E. Bailey Jr., PhD, RN, Assistant Professor, received his BSN from Atlantic Christian College (Barton) in Wilson NC, his MN in Nursing Administration from Emory University in Atlanta GA and his PhD in Nursing from the University of North Carolina at Chapel Hill. Dr. Bailey's research focuses on the care of older men living with chronic illnesses such as prostate cancer and Hepatitis C. He has received research funding from the Oncology Nursing Society, Sigma Theta Tau, UNC-CH Lineberger Comprehensive Cancer Center and Institute on Aging, the TRAC Center and the NINR. He is active professionally in Sigma Theta Tau, the Southern Nursing Research Society and the Oncology Nursing Society where he is a member of the Advanced Nursing Research special interest group.

Julie Barroso, PhD, ANP, APRN-BC, Associate Professor and Director of the Adult Nurse Practitioner Specialty. She received her BSN from Florida State University, MS in nursing from the University of South Florida, and PhD in nursing from the University of Texas at Austin in 1993. She is an ANCC-certified Adult Nurse Practitioner. Her research interests are in HIV-related fatigue and qualitative metasynthesis. She has published more than 20 articles, most of them research-based, and is a reviewer for numerous journals. She has served the HIV-positive community personally and professionally for almost 15 years. She is Chair of the Association of Nurses in AIDS Care Research Committee, and serves on the Chronic Fatigue and Immune Dysfunction Syndrome Association Curriculum Advisory Committee. Dr. Barroso also is a member of the American Nurses Association, Sigma Theta Tau, and the Southern Nursing Research Society.

Jane Blood-Siegfried, DNSc, RN, CPNP, Assistant Clinical Professor, completed her doctorate in nursing at the University of California, Los Angeles with a focus in immunology. She is a fellow of the National Association of Pediatric Nurse Associates and Practitioners, has a strong background in primary care of children, community based care, and school health programs. Her

research is in the area of immune responses to various stresses; she is currently working on the effects of prenatal nicotine exposure on neurologic development of the fetus and its relationship to Sudden Infant Death Syndrome.

Debra Brandon, PhD, RN, CNS, Associate Professor and Director, Neonatal Nurse Practitioner Specialty, is also a CNS for the Duke Intensive Care Nursery. She received her doctorate in nursing from the University of North Carolina at Chapel Hill. Her MSN and BSN were also from the University of North Carolina at Chapel Hill. Dr. Brandon has extensive clinical experience in neonatology, pediatrics, and child development. Before joining the Duke faculty, Dr. Brandon was a pediatric clinical nurse specialist at The Mary Imogene Bassett Hospital in Cooperstown, NY, and a developmental clinical nurse specialist at the Center for Development and Learning in Chapel Hill, NC. She was also on faculty in the nursing and medical schools of the University of North Carolina at Chapel Hill. Dr. Brandon is an active member of the National Association of Neonatal Nurses and the International Society for Infant Studies. Her research interests include the effects of the intensive care environment on the growth and development of pre-term infants.

John M. Brion Jr., PhD, RN, Assistant Clinical Professor, earned his PhD in Nursing in 2007 from The Ohio State University. In addition, he holds a BA in History from Clarion University of Pennsylvania, a BS in Nursing, BA in psychology, BA in Sociology and an MS in adult health nursing from The Ohio State University. His doctoral research focused on treatment adherence in gay men living with HIV and his research interests include psychosocial aspects of chronic illness, HIV, and rural healthcare. Dr. Brion has taught courses in Adult Health, Leadership and Management, Death and Dying and Personal Health and his clinical expertise is in adult health and emergency/trauma nursing. Dr. Brion served as the administrator of the Ohio Department of Health AIDS Drug Assistance Program (ADAP), the Executive Director of the Ohio Board of Nursing and on the Board of Directors of the National Council of State Boards of Nursing. He is a member of national honor societies in nursing (Sigma Theta Tau), psychology (Psi Chi) and history (Phi Alpha Theta), The Association of Nurses in AIDS Care (ANAC), The American Public Health Association and The American Assembly of Men in Nursing (AAMN)

Mary T. Champagne, PhD, RN, FAAN, Professor and Interim Associate Dean for Academic Affairs, is the former dean of the School of Nursing. She has her master's and doctorate from the University of Texas at Austin. Dr. Champagne's research work has focused on the prevention of acute confusion in hospitalized elderly patients and she was also the clinical nursing research specialist on the Disseminating Nursing Research Project, funded initially by the National Center for Nursing Research and then the Division of Nursing. She has published widely from her research areas; she is a co-editor of five books, each of which received the AJN Book of the Year Award. In 1995 she received a Cameo Award for Outstanding Nurse Researcher, Sigma Theta Tau International. She is active professionally in Sigma Theta Tau, NCNA and AACN.

Kirsten Corazzini, PhD, is an Assistant Professor in the gerontology specialty at the Duke University School of Nursing. She joined the School of Nursing faculty in 2002 after completing a National Institute on Aging Postdoctoral Research Fellowship at the Duke University Center for the Study of Aging and Human Development. Dr. Corazzini's research focuses on how front-line caregivers in long term care develop patterns of resource allocation. Her research has examined predictors of service authorizations among home care case managers, as well as the

processes through which nursing facility nurse aides provide routine assistance with activities of daily living. Particular attention in Dr. Corazzini's research has been given to the organizational attributes and management practices that either enhance or inhibit effective nurse aide implementation of care protocols.

Linda L. Davis, PhD, RN, ABP, DP-ANP, was named one of the School's first Distinguished Professors is Professor in the School of Nursing. She has a Baccalaureate in Nursing from Old Dominion University, a Master's in Nursing from the University of North Carolina at Chapel Hill, a Doctor of Philosophy in Nursing from the University of Maryland, and completed post-doctoral studies on family research methods at the University of California at San Francisco. Dr. Davis was one of the first Robert Wood Johnson Nurse Fellows in Primary Care and as an Adult Nurse Practitioner, practiced in elder care settings in New York, Oregon, Virginia and Alabama. Dr. Davis has teaching and administrative experience in baccalaureate, masters and doctoral programs in Nursing and has published more than 60 papers and book chapters on elder care education, advanced practice and research. Currently, she is the principal investigator for an NIH/NINR-funded study on testing strategies for helping family caregivers provide home care for frail elders with Alzheimer's or Parkinson's disease. Dr. Davis is a member of Sigma Theta Tau and the Gerontological Society of America. She joined the School in 2005.

Susan Denman, PhD, RN, APRN-BC, FNP, Assistant Professor, teaches primarily in the family nurse practitioner major. She also coordinates the Medical Spanish and Cultural Competency courses offered by the School of Nursing. She received a diploma in nursing from St. Joseph's School of Nursing and a BS in Nursing from SUNY Stony-brook. Her Master's in Nursing and family nurse practitioner education was also done at SUNY Stonybrook. Dr. Denman's clinical background includes public health nursing and work as a family nurse practitioner in a variety of settings from urban hospital-based clinics to rural community health centers. She completed her doctoral work at the University of North Carolina at Chapel Hill in 1996 where she conducted research focusing on health promotion/illness prevention among low income, Latina mothers. Her current research is focused on access to health care for Latinos.

Sharron L. Docherty, PhD, CPNP-AC, is an Assistant Professor and Director, Acute Care Pediatric Nurse Practitioner Specialty. Dr. Docherty's program of research centers on symptom distress in children undergoing treatment for cancer. She is particularly interested in the effects of chronic illness on child development. She currently practices and conducts research with the Duke Pediatric Stem Cell Transplant Program. Dr. Docherty received her BScN at the University of Windsor, her MScN at the University of Western Ontario, Canada and her PhD at The University of North Carolina at Chapel Hill. She is a faculty member of the Center for Developmental Science at UNC-CH. She is a member of NAPNAP, Society for Research in Child Development, Southern Nursing Research Society and Sigma Theta Tau.

Anthony T. Dren, PhD, RPh, Consulting Professor, received his doctorate in Pharmacology from the University of Michigan, Ann Arbor, MI. He has a master's in Pharmacy from Duquesne University, Pittsburgh, PA and is a registered pharmacist. Dr. Dren has more than 30 years experience in pre-clinical and clinical drug development with expertise in the design, execution, monitoring and reporting of Phase I-IV multi-center clinical trials. He has held managerial and research positions at Abbott Laboratories, Burroughs Wellcome Co. and, most recently, at Cato

Research Ltd. He has implemented, managed, monitored and reported on more than 40 drug development clinical trials, is credited with the publication of 96 scientific articles in professional journals, and holds ten patents. Dr. Dren teaches in the Clinical Research Management Program.

Pamela Edwards, EdD, MSN, RN, BC, currently serves as the Director of Education Services for the Duke University Health System as well as Associate Consulting Professor and Director, Nursing Education Specialty for the Duke University School of Nursing and the Deputy Director of the Duke University Area Health Education Program (AHEC). She holds a Bachelor's Degree in Nursing from Atlantic Christian College, a Master's Degree in Nursing Education from Villanova University and a Doctor of Education with a major in Occupational Education from North Carolina State University. Dr Edwards is a Field Editor for the American Society of Training and Development (ASTD) and serves on the North Carolina Nurses Association Continuing Education Approver Unit. She is a member of ANA, NCNA, ASTD, and Sigma Theta Tau.

Catherine L. Gilliss, DNSc, RN, FAAN, is a graduate of Duke University (BSN, 1971), The Catholic University of America (MSN, 1974), and University of California, San Francisco (DNSc, 1983), where she also completed her post-doctoral studies as a University President's Fellow. She now serves as Dean of the Duke University School of Nursing and Vice Chancellor for Nursing Affairs. Prior to assuming this appointment she served as Professor and Dean at the Yale University School of Nursing (1998-2004), and Professor and Chair of the Department of Family Health Care at the University of California, San Francisco (1983-1998). Her career has been devoted to graduate nursing education, particularly the preparation of nurse scientists and advanced practice nurses for roles in primary care. Dr. Gilliss' scientific interests include the family and chronic illness.

Linda K. Goodwin, PhD, RN, Associate Professor, completed her BSN and MSN at the University of Missouri and her doctorate at the University of Kansas with a major in nursing and a minor in computer science/informatics. Her area of expertise is informatics, data mining research and development of expert systems. Her research, funded by the National Library of Medicine uses data mining methods for predicting preterm birth risk in pregnant women. She holds a joint appointment in Community and Family Medicine. Dr. Goodwin serves as the director for the Informatics specialty.

Judith C. Hays, PhD, RN, Associate Professor, received her MSN in Community Health Nursing from the Yale School of Nursing and her PhD in Epidemiology of Chronic Disease and Aging from the Yale School of Medicine, Department of Epidemiology and Public Health. Dr. Hays was a District Public Health Nurse in New Haven, CT, and hospice inpatient and homecare nurse at Connecticut Hospice, the first hospice hospital in the U.S. An Associate Professor in the School of Nursing and Senior Fellow in the Center for Aging and Human Development at Duke University, her research interests include death, dying, bereavement, and widowhood; geriatric depression; late life living arrangements and residential life history; and spiritual life history. She has published over 70 articles in peer reviewed gerontology and psychiatry journals and co-

authored a textbook on research methods in psychiatry. Dr. Hays is Editor of the peer-reviewed journal *Public Health Nursing* and serves on multiple review and editorial boards. She is also a Fellow of the Gerontological Society of America

Cristina Hendrix, DNS, APRN-BC, GNP, FNP, Assistant Professor, completed her BSN at the University of Santo Thomas in Manila, Philippines; she received her MSN-FNP at the University of Alabama and her DNS from Louisiana State University. Dr. Hendrix's background includes experience as a critical care nurse, followed by practicing as a family nurse practitioner. She has also has experience as an instructor of adult health and critical care nursing. Her interests are now in gerontological nursing. She is a member of Sigma Theta Tau, the American Association of Nurse Practitioners and the American Association of Critical Care Nurses.

Elizabeth Hill, PhD, RN, Assistant Professor and Specialty Director of the Clinical Research Management Specialty, received her Master of Science in Community Health Nursing from Texas Women's University and her doctorate from the Catholic University of America. She joined the faculty following her retirement from the Army Nurse Corps after 20 years of service. Dr. Hill also held a Commission in the US Public Health Service assigned as a community health nurse serving with the Indian Health Service. During her active duty Army career she has served as the clinical research nurse for vaccines and treatments in clinical trials, Regional Nursing Research Coordinator at Fitzsimons Army Medical Center, deputy chair of the Institutional Review Board at Tripler Army Medical Center and the Assistant Chief of the Department of Clinical Investigation at Tripler. Dr. Hill is a member of the American Association of Critical Care Nurses and Sigma Theta Tau.

Diane Holditch-Davis, PhD, RN, FAAN, is Marcus Hobbs Distinguished Professor of Nursing and Associate Dean for Research Affairs. She received her BSN from Duke University and her MS in parent-child nursing and PhD in developmental psychobiology, both from the University of Connecticut. Prior to coming to Duke, she taught for more than 20 years at the University of North Carolina at Chapel Hill, where she served as the Director of the Doctoral and Post-Doctoral Programs in the School of Nursing. Dr. Holditch-Davis's research focuses on predicting developmental outcomes in medically at risk infants, identifying effects of maternal psychological well-being on mother-child interactions and child developmental outcomes, and using the development of sleeping and waking to measure biological risk in preterm infants. As part of her studies, Dr. Holditch-Davis has refined methods to study mother-infant behavioral interactions both in the hospital environment and in the home. Currently, Dr. Holditch-Davis is principal investigator on a study investigating a nursing support intervention for mothers of preterm infants and a study comparing kangaroo care with infant massage.

Constance M. Johnson, PhD, RN, Assistant Professor, is an informatician with interdisciplinary training in nursing and health informatics. She received her BSN from the University of Connecticut and her MS and PhD in Health Informatics from the University of Texas Health Science Center, School of Health Information Sciences. Dr. Johnson has over 20 years of experience in research and informatics in the areas of health promotion and disease prevention. In addition to developing and directing the development of numerous large databases as well as user-interfaces, in the areas of obstetrics/neonatology, cancer prevention, and cancer genetics, Dr. Johnson has extensive experience with large population studies. She has done research in

preterm labor prevention, healthcare informatics, mental models, human-centered interface and web design, colorectal cancer prevention, information visualization, and cancer risk models. While at The University of Texas Health Science Center, Dr. Johnson studied under an F38-Fellowship from the National Library of Medicine. She has given numerous national peer-reviewed conference presentations and has been an author on numerous articles.

Lawrence Landerman, PhD, Associate Research Professor, holds a primary appointment as an Associate Medical Research Professor with the Duke University Department of Psychiatry, a position he has held since 2001. Prior to his promotion, Dr. Landerman worked as an Assistant Medical Research Professor with the Department of Psychiatry from 1986 to 2001. He graduated from Duke University with a B.A. in 1967, an M.A. in 1975, and a Ph.D. in 1979. All degrees earned were in the Sociology specialty. Dr. Landerman works extensively with our TRAC Center, and will be a proposal-writing, and statistical analysis resource for our faculty and students.

Michelle H. Martin, PhD, RN, Assistant Clinical Professor, received her BSN from Alfred University, her MS in Psychiatric and Mental Health Nursing from Syracuse University, and her PhD in Nursing from Case Western Reserve University. She is a member of Sigma Theta Tau, Midwest Nursing Research Society and the New York Academy of Sciences. Dr. Martin has received funding from NIMH and has served in the U.S Army Nurse Corps.

Eleanor S. McConnell, PhD, RN, APRN-BC, Associate Professor, has strong clinical and scholarly experience in the field of gerontology. Dr. McConnell is currently funded by the National Institute of Nursing Research to study disability in nursing home residents with dementia. In addition to continuing her own research in the area of enhancing functional ability in frail elderly, she assists students, and nurses at DUMC with research and research utilization projects including investigating funding sources and assisting nurses with preparation of grant applications and presentations. Her BSN and MSN are from the Duke School of Nursing; her doctorate is from the University of North Carolina at Chapel Hill. She is active in Sigma Theta Tau and is an editor for Gerontologist. She also maintains her expertise in geriatrics through her clinical work at the Durham Veterans Affairs Medical Center.

Judith K. Payne, PhD, RN, AOCN, CS, Assistant Professor in the School of Nursing and an Associate Fellow in the Center on Aging and Human Development at Duke University Medical Center. Dr. Payne received her Master's and Doctorate in Nursing from the University of Iowa. Dr. Payne received a three year NSRA Pre-doctoral Gerontology Trainee Fellowship from the University of Iowa. She has expertise in adult and geriatric oncology, adult bone marrow transplant, and has extensive administrative experience in complex cancer center organizations. Dr. Payne's research program focuses on understanding biochemical mechanisms of cancer related fatigue, and determining which interventions are more effective and will improve quality of life across different cancer populations. She is also interested in geriatric oncology, and circadian influences on symptom management in adult and older cancer patients.

Dorothy L. Powell, EdD, RN, FAAN, is Director of the Office of Global and Community Health Initiatives in the School of Nursing and Clinical Professor of Nursing. She received her undergraduate degree in Nursing from Hampton University, Hampton, VA, her Master of

Science in Maternal and Infant Nursing from the Catholic University of America, Washington, DC, and her EdD in Higher Education Administration from the College of William and Mary, Williamsburg, VA. Dr. Powell completed further studies through the Executive Development Series in the School of Education at Harvard University. Her experiences and expertise include community development and partnering, program and workforce training in developing countries, and environmental justice. She served as Dean and Associate Dean of Nursing Education at Howard University, Washington, DC for the past 18 years before joining the faculty at Duke. Dr. Powell is a Fellow in the American Academy of Nursing.

Marva Mizell Price, DrPH, FNP, FAAN, Assistant Professor and Director for the Family Nurse Practitioner Specialty, received her Masters of Public Health in Maternal and Child Health (MCH), and Doctor of Public Health in MCH and Public Health Leadership from the University Of North Carolina School Of Public Health, Chapel Hill. Dr. Price graduated from the family nurse practitioner program at the University Of North Carolina School Of Nursing in 1974 and completed the post-masters program in Developmental Pediatrics from the University of Washington School of Nursing, Child Development and Mental Retardation Center. Her clinical practice areas have included rural health, developmental pediatrics, and reproductive health. Dr. Price has received funding for reproductive health and cancer prevention/ detection research from the Centers for Disease Control and Prevention, Avon Corporation, and the Department of Defense. Dr. Price serves on the N.C. Commission for Health Services (State Board of Health) and on a commercial Institutional Review Board. She is active in the American Nurses Association, American Public Health Association, Albert Schweitzer Foundation N.C. Board of Advisers, Oncology Nursing Society, and Cervical Cancer Advisory Board for the American Social Health Association.

Carla G. Rapp, PhD, CPRN, Assistant Professor, received her MSN from the University of Arkansas with a clinical specialization in gerontology and functional specialization in nursing administration; she received her doctorate from the University of Iowa. Dr. Rapp completed a Post Doctoral Fellowship with the National Institute for Mental Health Fellowship Program, University of Arkansas for Medical Sciences. She has served as a Research Health Scientist and completed a Postdoctoral Fellowship with the Veterans Affairs Health Services Research and Development Center for Mental Healthcare and Outcomes Research. Dr. Rapp has been a scholar with the John A. Hartford Foundation Institute for Geriatric Nursing Summer Scholars and Fellows Geriatric Nursing Research Seminar and a participant in the American Association for Geriatric Psychiatry/ National Institute for Mental Health Summer Research Institute. She is a member of the American Nurses Association, American Association for Geriatric Psychiatry and Sigma Theta Tau among other organizations.

Susan M. Schneider, PhD, RN, CS, AOCN, Associate Professor, serves as Director of the Oncology Nursing Specialty. She received her doctorate in nursing from Case Western Reserve University, her Master of Science Degree from Texas Woman's University, and her BSN from the University of Akron. Dr. Schneider has extensive experience in pediatric and adult oncology nursing. She holds certification as a clinical nurse specialist and as an advanced oncology certified nurse. Prior to joining the faculty at Duke University, Dr. Schneider taught in the oncology program at Frances Payne Bolton School of Nursing, and was a clinical nurse specialist at University Hospitals of Cleveland. She is active professionally in Sigma Theta Tau, the

Association of Pediatric Oncology Nurses and the Oncology Nursing Society. Her research interests include the management of symptom distress in cancer patients and the use of distraction interventions to enhance coping. She has received research funding from the Oncology Nursing Society, the American Cancer Society, Case Western Reserve University's Comprehensive Cancer Center and the NINR.

Nancy M. Short, DrPH, MBA, RN, Assistant Professor received her graduate education in business from the Fuqua School of Business at Duke University. Her doctorate is from the University of North Carolina's School of Public Health. At UNC, her research focused on primary care nurse practitioner practice as it is described in major surveys.

She has extensive clinical and nursing management experience including specialization in employee relations. Her experience and education also encompasses association management. She has published on asynchronous interdisciplinary education models, international teaching models, and had a standing column in a state nursing association journal on workplace issues. Her activities include leading workshops on quality management concepts and principles. She is active in NCNA/ ANA, and Academy Health.

Kathleen J. Sikkema, PhD, Professor of Nursing, Psychology and Psychiatry and Behavioral Sciences, received a PhD in Clinical Psychology from Virginia Tech in 1991, following a pre-doctoral residency at Rush-Presbyterian-St. Luke's Medical Center. She was appointed as an Assistant Professor of Psychiatry and Behavioral Medicine at the Medical College of Wisconsin in 1991, and promoted to Associate Professor in 1997. In 1999, she moved to Yale University as an Associate Professor of Psychiatry with secondary appointments in Epidemiology and Public Health and Psychology. Dr. Sikkema joined the faculty of the Duke School of Nursing in Fall 2006. Her expertise is in the conduct of randomized, controlled HIV prevention and mental health intervention trials, with expertise in community-level prevention interventions. She has served as the P.I. of two multi-site, community level interventions trials, one undertaken with women and the other with adolescents living in low-income housing developments in geographically diverse U.S. cities. Dr. Sikkema also conducts research on the development of HIV-related coping and secondary prevention interventions and has been the PI of three randomized, controlled trials evaluating group interventions for men and women with HIV. Her HIV mental health research has been primarily focused on developing group intervention models to assist persons with HIV disease who are coping with HIV-related stressors. These include AIDS-related loss and bereavement, traumatic stress due to childhood sexual abuse, and issues specific to coping with HIV among men and women over 50 years of age. Dr. Sikkema is involved in HIV-related research in South Africa, India and Russia and has served as a mentor to numerous international and domestic research fellows. She is considered a national leader in HIV primary and secondary prevention research with a 15-year history of NIH funding, 100 publications in peer reviewed journals, numerous invited lectures in national and international settings, leadership roles in NIMH Centers, consultant roles, and NIH review panel memberships.

Deirdre K. Thornlow, PhD, RN, CPHQ, Assistant Professor, is an advanced practice nurse with over 20 years experience in healthcare. Dr. Thornlow received her BSN from The Pennsylvania State University, her MN from the University of California-Los Angeles, and her PhD in Nursing from the University of Virginia. Dr. Thornlow has held numerous leadership positions

throughout her career and is pursuing a program of health services research that capitalizes upon her expertise in acute care quality and patient safety. Her dissertation research, *Relationship of Hospital Systems and Utilization of Patient Safety Practices to Patient Outcomes*, was funded by a National Research Service Award from the National Institute of Nursing Research and was selected as the 2007 most meritorious dissertation by the University of Virginia School of Nursing faculty. Dr. Thornlow is a Certified Professional in Healthcare Quality (CPHQ), and a member of the National Association for Healthcare Quality (NAHQ), Academy Health, and the American Organization of Nurse Executives. She recently served as Vice President of the Beta Kappa chapter of Sigma Theta Tau, the International Honor Society of Nursing.

Joshua M. Thorpe, PhD, MPH, Assistant Research Professor received his Bachelor's of Arts Degree in Neuroscience from Hamilton College in 1995, his Master's in Public Health in Epidemiology from the George Washington University in 2000, and his PhD in Pharmaceutical Policy & Evaluative Sciences in 2005 from UNC-Chapel Hill. While at UNC, his work was supported by an AHRQ NRSA Predoctoral Fellowship through the Cecil G. Sheps Center for Health Services Research and an American Foundation for Pharmaceutical Education Fellowship. His dissertation research examined informal caregiver depression as a barrier to medical care in care-recipients with dementia. Dr. Thorp's research interests include geriatric health services research, adherence to treatment regimens, disparities in access to health services and pharmaceuticals, and exploring ways to use secondary data sources to measure quality of care and identify inequities in access to services.

Barbara S. Turner, DNSc, RN, FAAN, Professor, received her graduate degrees in hospital administration and perinatal nursing. Her doctorate is from the University of California, San Francisco. Following her retirement from the Army Nurse Corps, she assumed the position of Associate Dean and Director of the Center for Nursing Research at Duke. Dr. Turner's research interests focus on the effect of nursing intervention on critically ill newborns, including exogenous surfactant administration, endotracheal suctioning, high frequency ventilators and airway management. She has published widely in journals, books, monographs and computer-assisted instruction and serves as the Section Editor in *Heart & Lung* and *Journal of Child and Family Research* in addition to being a reviewer for other nursing journals. She is active professionally in AACN, American Academy of Nursing, ANA, NCNA, NANN, and Sigma Theta Tau.

Queen E. Utley-Smith, EdD, RN, Assistant Professor, received her BSN from North Carolina Central University (NCCU) in Durham, her MS in Community Family/Primary Care from the University of Connecticut, and her EdD. in Health Occupations Education from North Carolina State University. Prior to joining the Duke faculty, she established and coordinated a distance education option for RN-BSN students at NCCU. She is a member of Sigma Theta Tau and the Capital Area Guillian-Barre Syndrome Association.

Wendy Demark-Wahnefried, PhD, RD, LDN, is a Professor with a primary appointment in the School of Nursing and a secondary appointment in the Department of Surgery. Dr. Demark-Wahnefried is a nutrition scientist who received her baccalaureate degree from the University of Michigan (major in Nutritional Science and minor in Chemistry), completed a master's degree/clinical internship through the Baylor College of Medicine and the Texas Medical Center

and her doctoral degree in Nutritional Science from Syracuse University. While at Syracuse University, she was nominated for “Teacher of the Year.” She started her research career in dietary management of hyperlipidemia, however upon coming to Duke her research has focused exclusively on cancer. For over a decade she has pursued a wide array of research efforts related to hormonally-linked cancers (from basic science and epidemiological studies to intervention trials), research that has garnered continuous NIH-funding since 1993. Currently, Dr. Demark-Wahnefried leads three R01-funded phase II randomized controlled trials — one that is testing the effects of flaxseed supplementation and dietary fat restriction on prostate cancer proliferation rates among men scheduled for prostatectomy, and two which are testing home-based diet and exercise interventions among breast, prostate and colorectal cancer survivors to improve health behaviors, functional status and quality of life. Her work in the area of cancer survivorship is internationally recognized and she is the recipient of the Susan B. Komen Foundation Professor of Survivorship Award, as well as the Ross Award in Women’s Health. During her tenure, Dr. Demark-Wahnefried has mentored several junior faculty, post-docs and residents.

Appendix E. 5-Year Student, Faculty and Resource Projection

Duke University School of Nursing Doctor of Nursing Practice Budget Pro-Forma

| | <u>Year 1</u> | <u>Year 2</u> | <u>Year 3</u> | <u>Year 4</u> | <u>Year 5</u> |
|---|-----------------------|----------------------|----------------------|----------------------|------------------------|
| <u>Revenue:</u> | | | | | |
| Students (see enrollment detail) | 8 | 18 | 33 | 45 | 65 |
| Credits (see enrollment detail) | 144 | 324 | 554 | 940 | 1315 |
| Tuition rate per credit | \$1,000 | \$1,120 | \$1,187 | \$1,258 | \$1,334 |
| DNP Tuition Revenue | \$144,000 | \$362,880 | \$657,709 | \$1,182,926 | \$1,754,128 |
| Lost MSN Students | 0 | 0 | 0 | 10 | 25 |
| Lost MSN Tuition Revenue (at 18 credits/year) | \$0 | \$0 | \$0 | (\$226,518) | (\$600,272) |
| Net Increase in Tuition Revenue | \$144,000 | \$362,880 | \$657,709 | \$956,408 | \$1,153,856 |
| <u>Expenses:</u> | | | | | |
| New Faculty 1 | \$104,550 | \$107,687 | \$110,917 | \$114,245 | \$117,672 |
| New Faculty 2 | \$0 | \$107,687 | \$110,917 | \$114,245 | \$117,672 |
| New Faculty 3 | \$0 | \$0 | \$0 | \$114,245 | \$117,672 |
| Staff Assistant | \$49,200 | \$50,676 | \$52,196 | \$53,762 | \$55,375 |
| Supplies/Misc (at 13% of revenue) | \$18,720 | \$47,174 | \$85,502 | \$153,780 | \$228,037 |
| Recruiting Expense | \$4,000 | \$4,000 | \$4,000 | \$4,000 | \$4,000 |
| Faculty Discretionary Accounts | \$1,200 | \$2,400 | \$2,400 | \$3,600 | \$3,600 |
| Office and Computer Set Up | \$10,000 | \$5,000 | \$0 | \$5,000 | \$0 |
| Other, Unanticipated Expense | \$25,000 | \$25,000 | \$25,000 | \$25,000 | \$25,000 |
| Total Expenses | \$212,670 | \$349,623 | \$390,933 | \$587,876 | \$669,028 |
| Net Margin from Addition of DNP | (\$68,670) | \$13,257 | \$266,776 | \$368,532 | \$484,829 |
| Net Margin % of Revenue | -48% | 4% | 41% | 39% | 42% |
| Potential Expense Offsets from HRSA Grant | \$0 | \$250,000 | \$250,000 | \$250,000 | \$0 |
| Net Margin with HRSA Offsets | (\$68,670) | \$263,257 | \$516,776 | \$618,532 | \$484,829 |
| Net Margin % of Revenue with HRSA Offsets | -66% | 244% | 466% | 541% | 412% |

Appendix F. Master's Specialty Courses

320. Neonatal and Pediatric Pathophysiology. Focuses on advanced pathophysiologic knowledge as a basis for understanding alterations in biologic processes in the developing organ systems of neonatal and pediatric patients. With this foundation, students learn to differentiate normal from abnormal findings in patients from birth through eighteen years. Fall. 3 credits.

321. Neonatal and Pediatric Pharmacology. Focuses on principles of pharmacologic management of pediatric patients with various conditions. Data collection and diagnostic reasoning are emphasized in relation to drug selection, delivery, monitoring, and evaluation of pharmacologic interventions. Family education is incorporated. Spring. 3 credits.

322. Common Pediatric Management Issues I. Focus on comprehensive assessment and management of selected pediatric primary care problems. Includes information on acute and chronic illnesses, health maintenance issues, and recognition of circumstances that require interdisciplinary collaboration or referral within the areas of dermatology, ophthalmology, otolaryngology, cardiac, pulmonary, immunology, rheumatology, gastrointestinal, and urology. Integration of pathophysiology and the pharmacological management of common problems. Emphasis on advanced practice role development in care management discussions and supervised clinical practice. Clinical practice opportunities in a variety of settings are arranged with the instructor. Spring. 104 clinical hours. Prerequisites: Nursing 320 and 336 and consent of instructor. 321 and 430 (may be taken concurrently). Current BCLS certification including the Heimlich maneuver; PALS certification highly recommended. 4 credits.

323. Common Pediatric Management Issues II. Focus on comprehensive assessment and management of selected pediatric primary care problems. Includes information on acute and chronic illnesses, health maintenance issues, and recognition of circumstances that require interdisciplinary collaboration or referral within the areas of hematology, gynecology, neoplastic disorders, endocrinology, musculoskeletal disorders, neurology, emergency care, and HIV/AIDS. Integration of pathophysiology and the pharmacological management of common problems. Emphasis on advanced practice role development in care management discussions and supervised clinical practice. Clinical practice opportunities in a variety of settings are arranged with the instructor. Summer. 104 clinical hours. Prerequisites: Nursing 320, 321, 322, 336 and 430 and consent of the instructor. 324 (may be taken concurrently). Current BCLS certification including the Heimlich maneuver; PALS certification highly recommended. 4 credits.

324. Health Care of Infants and Children in Rural Settings. The course prepares the advanced practice nurse (APN) to anticipate, recognize, and manage problems associated with the care of infants and children in the rural setting; to provide accepted stabilization techniques and initiate safe transport; provide ongoing acute/ primary care and conduct family centered care. Issues of access and limitation to health care will be emphasized. The course will also provide awareness of local and regional services and programs available to infants, children and their families and prepare the nurse practitioner to assist in the infant's integration into the community. Summer. Prerequisite: Nursing 320, 321 or permission of instructor. 2 credits.

329. Neonatal and Pediatric Pathophysiology for the Family Nurse Practitioner. Focuses on advanced pathophysiologic knowledge as a basis for understanding alteration in biologic processes in the developing organ system of neonatal and pediatric patients. With this foundation and the experience of the FNP, students learn of differentiate normal from abnormal findings in patients from birth through eighteen years. Fall. 3 credits.

330. Selected Topics in Advanced Pathophysiology. Focuses on developing advanced pathophysiological knowledge sufficient for understanding alterations in biological processes that affect the body's dynamic equilibrium or homeostasis. With this knowledge, students learn to differentiate normal from abnormal physiological function and to consider the causality of pathophysiological alterations in illness. Topics covered include the pathophysiology of common health problems and complex physiological alterations encountered in advanced clinical practice. Fall, spring. 3 credits.

331. Clinical Pharmacology and Interventions for Advanced Nursing Practice. Combines lecture and case analyses to increase skills in assessment and pharmacological management of patients with a variety of common acute and chronic health problems. Data collection and diagnostic reasoning are emphasized in relation to drug selection, patient/ family education, monitoring, and evaluation of pharmacological interventions. Spring, summer (on-line). Prerequisite: Nursing 330. 3 credits.

332. Diagnostic Reasoning and Physical Assessment in Advanced Nursing Practice. The course is adult focused with lecture and laboratory sessions designed to increase assessment skills and diagnostic reasoning appropriate for advanced clinical practice. Provider-patient interaction, patient data collection, and oral and written presentations are emphasized using faculty monitored student-to-student practice. Attention is given to development of an extensive set of assessment skills which will allow the learner to differentiate the normal anatomic and physiologic variation of adults from common abnormalities. Course placement is the semester prior to the first clinical course. Online course has 4 required campus-based sessions. Consent of instructor required. Fall, Campus. Spring, Online. Prerequisite or concurrent: Nursing 330 and current BCLS certification. 4 credits.

333. Managing Common Acute and Chronic Health Problems I. Emphasizes assisting adult patients to reach or maintain the highest level of health and functioning, with a focus on health promotion, health maintenance, and primary care management of common acute or chronic respiratory, cardiac, genitourinary, endocrine, dermatological, and musculoskeletal problems encountered by patients and families. Pharmacological management is systematically integrated. Clinical practice is in a variety of primary care settings including public and private, internal and family medicine practices, and community health clinics. Advanced practice role development is examined in seminars and supervised clinical practice. Spring, Summer—104 clinical hours. Prerequisites: Nursing 330 and 332. Prerequisite or concurrent: Nursing 331. 3 credits.

334. Managing Common Acute and Chronic Health Problems II. Emphasizes assisting adult patients to reach or maintain the highest level of health and functioning, with a focus on primary care management of common acute or chronic respiratory, cardiac, gastrointestinal, musculoskeletal, neurological, and mental health problems encountered by patients and families.

Pharmacological management is systematically integrated. Clinical practice is in a variety of primary care settings including public and private, internal and family medicine practices, and community health clinics. Advanced practice role development is examined in seminars and supervised clinical practice. Summer, Fall—104 clinical hours. Prerequisites: Nursing 330, 331, 332, and 333. 3 credits.

336. Pediatric Diagnostic Reasoning and Physical Assessment in Advanced Nursing Practice. Combines lecture and laboratory experiences to develop advanced skills in assessment of physical, cognitive, nutritional, cultural, and functional domains of pediatric patients. Practitioner-patient interactions, data collection, diagnostic reasoning, and oral and written presentation of data are emphasized. Fall. 4 credits.

351. Scientific Writing. This course provides a review of the principles and practice of scientific writing, with emphasis on research proposals, theses, other scientific papers, and articles for publication. This course will focus on writing techniques for scientific documents prepared in drug development, biotechnology and contract research organizations. Specifically, the course addresses such theoretical concepts as brainstorming, critical thinking and rhetorical theory, while focusing on aspects such as organizations, style and document design. Fall, Spring, Summer. 3 credits.

352. Business Writing in Healthcare. The emphasis in this course is on the particular skills needed for effective business written communication for clinicians and executives in healthcare. Theories for appropriate written business communication are discussed. Students will apply the concepts in practical application to formal letters, memos, e-mails, and reports. Spring (on-line). 1 credit.

353. Advanced Physiology. A study of the anatomic structures and related physiochemical mechanisms governing cellular, respiratory, cardiovascular, neurological, hematological, and renal systems. The course focuses on developing an advanced knowledge base to understand normal human physiological phenomena. Spring. 3 credits.

357. Physiologic Monitoring and Advanced Practice Procedures. This year long course provides the student with an in depth understanding of selected invasive and noninvasive physiologic monitors and advanced practice procedures used in clinical settings with pediatric and neonatal patients. On campus sessions in the laboratory are required. Prerequisite or Concurrent: Students must be enrolled in one of the pediatric graduate majors in the Duke University School of Nursing. Fall. 3 credits.

359. Selected Topics or Independent Study. Fall, Spring, Summer.

400. Organizational Theory for Health Care Delivery Systems. Focuses on organizational behavior theory and research as the foundation for managerial and leadership interventions in integrated health care systems. Students learn how patient care system behaviors, structures, processes, and outcomes are affected by the actions of health system leaders. Fall (distance-based). 3 credits.

401. Managing Complex Health Care Systems. This course is an in-depth analysis of health care organizations as complex adaptive systems. The continuous change and unpredictability of complex systems, such as health care delivery systems, the importance of relationships, and the role of self-organization, emergence and co-evaluation will be explored. Implications for management will be explored including sense making, learning, improvisations, thinking about the future, and designing as substitutes for traditional activities of command, control, prediction and planning when complex health care systems. Spring (distance-based). 3 credits.

402. Financial Management and Budget Planning. Designed for managers in complex organizations. Focuses on the knowledge and skills needed by the manager to plan, monitor, and evaluate budget and fiscal affairs for a defined unit or clinical division. Health care economics, personnel, and patient activities are analyzed from a budgetary and financial management perspective in an environment of regulations and market competition. Fall (online). 3 credits.

404. Health Economics. Health care costs continue to be an increasing percentage of the United States' gross national product. This course focuses on health care financing as an essential foundation for the delivery of health care services. Students will study the principal ways in which health care is organized and financed and how policy influences health care environment, particularly related to access, cost and quality. Current issues in health care organizational structure and financing will be analyzed through case studies. Summer (on-line). 3 credits.

405. Health Care Operations: Human Resources, Quality, Law and Ethics. Students develop a toolkit for continuous improvement within health care organizations and systems and explore selected health law, ethical, and human resources issues in nursing and health care management. Students will apply concepts to practice using relevant theory, quality improvement parameters, ethics modeling, and analysis of landmark legal cases. Spring (distance-based). 3 credits.

407. Persuasive Presentations in Health Care. The emphasis in this course is on the particular skills needed for persuasive verbal business presentations for clinicians and executives in healthcare. Concepts for effective oral presentation, including use of visual aids will be discussed. Students will apply the concepts in practical application to speaking situations such as board room, executive meetings, funding agencies, community organizations, and professional groups. Fall (distance-based). 1 credit.

408. Effective Meeting Management in Health Care. The emphasis in this course is on concepts and strategies for successful meetings of clinicians and executives in healthcare. Students will acquire the skills necessary to create, lead and assess group meetings in a variety of situations such as quality improvement, staff, executive, board, and informal meetings. Summer (distance-based). 1 Credit.

409. Overview of Health Care Information Systems. This course provides an overview of historical, current and emerging information systems in health care. Multiple systems, vendors, processes and organizations will be studied. Students will learn features and functions that are common to most health care information systems. Criteria, tools and methods for evaluating

health care information systems will be explored. The course also explores the anticipated impact of a National Health Information Infrastructure (NHII) for improving population-based health outcomes. Spring (distance-based). 3 credits.

410. Informatics Issues in Nursing Systems. This course examines a variety of informatics standards and issues within complex healthcare systems. Content is directed toward assisting the student to understand relationships between the current state of patient care and complex issues involved in clinical informatics practice. Organizational, professional, policy, ethical, social, cultural, economic, and legal issues are among the many issues discussed. Spring (distance-based). Prerequisite or Concurrent: Nursing 409. 3 credits.

411. Nursing Informatics Theory and Application. This course is concerned with the intersection of clinical science, computer science, and information/decision science, and examines both theoretical and practical considerations that impact informatics applications in health care. Content builds upon important issues in informatics, and adds theoretical content that is directed toward assisting the student to understand data-information-knowledge processing as it relates to clinical expertise, decision-making and patient care outcomes. Other theories that provide an organizational and software development context for clinical informatics are also covered. Change theory is pervasive in informatics practice and is covered with the project management course. Summer (distance-based). Prerequisites: Nursing 409 and 410. 2 credits.

412. Health Systems Project Management. This course is designed to leverage health care providers' expertise in facilitating both strategic planning and management of complex projects in health care organizations. Content focuses on project management throughout the systems lifecycle, and implements these skills in a health-related web site development project to demonstrate and reinforce concepts learned. Summer (distance-based). Prerequisites: Nursing 410 and 411. 3 credits.

413. Informatics Infrastructure for Safe Patient Care. This course is designed to facilitate the design and development of informatics solutions for real-world problems of providing safe patient care. Students will learn tools and strategies for domain modeling and building data-to-outcome information system components that require knowledge of informatics issues, standards, and relevant theories as well as evidence-based quality improvement strategies. Fall (distance-based). Prerequisites: Nursing 410, 411 and 412. 3 credits.

417. Capstone Seminar in Clinical Informatics Practice. This final capstone seminar course is designed to help graduating students synthesize prior learning as they transition from the academic environment into new professional roles in nursing and clinical informatics. The course will simultaneously facilitate tools to assist with a new job search while focusing seminar discussion on relevant hot topics in informatics that require students to use critical and creative thinking skills that synthesize program content, clinical expertise, and personal values. Spring (distance-based). Prerequisites: Nursing 412 and 413. 2 credits

418. Clinical Informatics Residency. The residency course will develop independent problem solving skills in the synthesis of advanced practice nursing knowledge and informatics knowledge and skills. Residency experiences are completed with the guidance and mentoring of a practicing informatics specialist. The student's learning experiences and informatics project/s will be devised and supervised by the student in consultation with the preceptor and course professor. Spring (distance-based). Prerequisites: Nursing 412, and 413. 3 credits

420. Managing Acute and Chronic Health Conditions in the Newborn I. Comprehensive assessment and management of the newborn from birth through hospitalization and discharge. Course content includes anatomical, pathophysiological, and pharmacological management of the newborn with a focus on high-risk delivery, transport, and cardiorespiratory alterations. Integration of the newborn into the family is an overarching theme. Clinical practice opportunities in a variety of settings. Spring. 104 clinical hours. Prerequisite: Nursing 336. 4 credits.

421. Managing Acute and Chronic Health Conditions in the Newborn II. Comprehensive assessment and management of the newborn infant during hospitalization. Course includes anatomical, pathophysiological, and pharmacological management of the newborn with varying conditions. Advanced practice role development is emphasized. Clinical practice opportunities in a variety of settings. Summer. 104 clinical hours. Prerequisite: Nursing 420. 4 credits.

423. Nurse Practitioner Residency: Neonatal. Focuses on the synthesis of theory and clinical management skills for the neonatal nurse practitioner within a collaborative model of practice in Level I, II, and III newborn units as well as follow-up clinics and transport. 4 to 6 units. Fall, Spring, Summer. 400 to 600 residency hours. Prerequisites: Nursing 320, 321, 336, 420, 421, and 430. Variable credit.

424. Clinical Nurse Specialist Residency: Neonatal. Focuses on the synthesis of theory and clinical skills for the clinical nurse specialist within a collaborative practice. Emphasis is placed on education, consultation, research, and clinical practice. 1 to 3 units. Fall, Spring, Summer. 100 to 300 residency hours. Prerequisites: Nursing 320, 321, 336, 420, 421, and 430. Variable credit.

426. Managing Acute and Chronic Health Conditions in Children I. Focuses on the pathophysiological mechanisms, clinical decision making, and treatment modalities in managing health problems seen in acutely, intensively, and chronically ill pediatric patients in the hospital, home, or long-term care facility. Integration of the family into the health care plan is an overarching theme. Primary care issues such as immunization and minor illness and health promotion are emphasized. Students have clinical rotations in a variety of settings. Spring. 104 clinical hours. Prerequisites: Nursing 320, 321, and 336. 4 credits.

427. Managing Acute and Chronic Health Conditions in Children II. Addresses the complex management issues with critically, chronically, and acutely ill children cared for in hospitals, the home, or long-term facilities. Complex technology used in the management of pediatric patients is integrated into the course. The role of the family in the child's illness and developmentally appropriate care are emphasized. Summer. 104 clinical hours. Prerequisites: Nursing 320, 321, and 336. 4 credits.

428. Nurse Practitioner Residency: Pediatric Acute Care. Provides the students an opportunity to synthesize theory and clinical management skills in the management of acutely and intensively ill pediatric patients in a collaborative model of practice. Residency sites and preceptors are individually arranged based on the needs of the students and availability of clinical sites. The emerging role of nurse practitioners in tertiary care settings is discussed. Consent of instructor required. 2 to 4 units. Fall, Spring, Summer. 200 to 400 residency hours. Prerequisites Nursing 320, 321, 336, 426, 427, and 430. Variable credit.

430. Advanced Concepts in Pediatric Growth, Development and Behavior. This course focuses on developmental issues in the advanced practice of pediatric nursing and will address the normal cognitive, motor, social/emotional and language development along with the usual developmental challenges of each age group. The implications of developmental stage, level of developmental skill, developmental problems and developmental theories important to the understanding of each stage will be utilized as they relate to health supervision and the management of illness by the nurse practitioner. Spring. Prerequisite: Nursing 336 or consent of instructor. 3 credits.

431. Advanced Concepts in Pediatric Growth and Development for the Nurse Practitioner. This course addresses normal patterns and common variations of pediatric growth, development and behavior. Course content will include stages, ranges and sequence in development in cognitive, language, gross motor, fine motor/adaptive and personal/social domains from infancy through adolescence. Fall. 3 credits.

438. Clinical Nurse Specialist Residency: Pediatrics. Supervised clinical practicum exploring the role of the clinical nurse specialist in a pediatric setting of the student's choice. Fall, spring, summer. Minimum 300 clinical hours. Prerequisites: Nursing 330, 331, 336, 430, and 431 (431 may be taken concurrently). Variable credit.

439. Nurse Practitioner Residency: Pediatrics. Supervised clinical practice which allows opportunities for practice as a pediatric nurse practitioner. 1 to 4 units. Fall, spring, summer. 100 to 400 residency hours. Prerequisites: Nursing 322, 323, 330, 331, 336, 430, and 431. Variable credit.

441. Child Health in Family Care. Focuses on children from infancy through adolescence within the contextual frameworks of family, school, and community. The course addresses growth and development, health maintenance, and anticipatory guidance needs of various age groups. The role of the family nurse practitioner in the management of common primary health care problems of children is emphasized. Clinical practice is in primary care settings that serve children: public health departments, school-based clinics, public and private family and pediatric practice sites, and rural/urban community health clinics. Fall and Spring. 104 clinical hours. Prerequisites: Nursing 330, 331, 332, 333, 334, and 440. 4 credits.

442. Sexual and Reproductive Health. This course focuses on women and men from adolescence through maturity within the context of their sexual and reproductive development. It addresses prenatal and postnatal care, health maintenance issues; common sexual and reproductive health problems; and sexuality and reproductive changes in men and women related

to special health issues and aging. The clinical practice component is in primary care, and obstetrical and gynecology practice settings that serve women and men at different points in the sexual and reproductive continuum. Fall and Spring. 104 clinical practice hours in direct patient care are required for family nurse practitioner majors: Prerequisites: Nursing 330, 331, 332, 333, and 334; for other majors: Nursing 332. Variable credit (2 - 4 credits depending on specialty).

449. Nurse Practitioner Residency: Family. Supervised practice in family primary care nursing. Management of common acute and chronic illnesses of patients across the life span. Development of the domains and competencies of nurse practitioner practice in family health care settings. Intense clinical practice under the mentorship of experienced clinicians including performing health assessments; ordering, performing, and interpreting diagnostic tests; determining a plan of care for patients and families; collaborating with the health care team; and referring patients to other health care providers. Seminars encourage the synthesis of clinical learning and the transition to the role of family nurse practitioner. Variable credit. Fall, spring, summer. 400 residency hours. Prerequisites: Nursing 330, 331, 332, 333, 334, 440, 441, and 442.

450. Management of Critically Ill Adult Patients I. Focuses on pathophysiological mechanisms (cardiovascular, pulmonary, and hepatic), clinical decision making, and treatment modalities for managing common problems seen in acutely/critically ill patients. Integration of technological aspects of care is emphasized in both the didactic and clinical components. Fall. 104 clinical hours. Prerequisites: Nursing 330, 331, 332, 333, and 334. 4 credits.

451. Management of Critically Ill Adult Patients II. Focuses on pathophysiological mechanisms (neurologic, endocrine, abdominal, trauma), clinical decision-making, and treatment modalities for the management of health problems seen in acutely/critically ill patients. Consent of instructor required. Spring. 104 clinical hours. Prerequisites: Nursing 330, 331, 332, 333, 334, 442, and 450. 4 credits.

455. Global Health. This course will offer students a detailed multidisciplinary introduction to major global health problems and their direct and indirect causes. Health disparities among and within nations will be explored for their causal relationships. Specific diseases and disease trends will be examined from the perspectives of biology, ethics, law, psychology, business, sociology, political science, environment, history, nursing and other medicine. Possible interventions will be examined through the disciplinary bases of engineering, medicine and public health. Diseases will include, but not be limited to: such as malaria, tuberculosis, sexual transmitted diseases, diarrhea, heart disease, cancer, and injuries. The course will include intensive reading, archival research, and writing. The course lab will consist of guest speakers who will further introduce students to disease causal pathways and potential interventions from the perspective of the faculty members' discipline. Fall (on-campus only). 3 credits.

457. Critical Care Clinical Nurse Specialist Residency. Focuses on the synthesis of research, theory, and clinical management skills in the care of adults in acute/critical care settings. Uses a collaborative practice model in delivering education, consultation, case management, research, and administrative issues in the acute/critical care unit. Sites and preceptors are individually arranged based on the needs of students. Fall, Spring, Summer. Prerequisites: Nursing 330, 331, 332, 333, 334, 450, and 451. Variable credit.

458. Nurse Practitioner Residency: Adult Acute Care. Focuses on the synthesis of theory and clinical management skills with implementation of the acute care nurse practitioner role in a collaborative model of practice. Consent of instructor required. 1 to 3 units. Fall, spring, summer. Minimum 300 residency hours. Prerequisites: Nursing 330, 331, 332, 333, 334, 442, 450, and 451. Variable credit.

459. Nurse Practitioner Residency: Adult Primary Care. Supervised practice in adult primary care nursing. Management of common acute and chronic illnesses of adult patients. Development of the domains and competencies of nurse practitioner practice in primary care settings. Intense clinical practice under the mentorship of experienced clinicians including performing health assessments; ordering, performing, and interpreting diagnostic tests; determining a plan of care for patients and families; collaborating with the health care team; and referring patients to other health care providers. Seminars encourage the synthesis of clinical learning and the transition to the role of adult nurse practitioner. 1 to 3 units. Fall, Spring, Summer. 100 to 300 residency hours. Prerequisites: Nursing 330, 331, 332, 333, 334, and 442. Variable credit.

460. Advanced Management of Patients with Cardiovascular Diseases. Focuses on the pathophysiology and management of patients with major cardiovascular disorders. Content includes diagnostic and treatment options, recovery of patients following major cardiac events, symptom management during chronic illness, and prevention of disease. Students also obtain skill in ECG interpretation and cardiac physical exam. Fall. Prerequisites: Nursing 330, 331, 332, 333 and 334; concurrent: Nursing 331 and 333. 3 credits.

461. Care Management of Patients with Selected Cardiovascular Illnesses. Provides the student with supervised experience in care management of adult patients with selected cardiovascular illnesses in a variety of clinical settings. Students use the knowledge and critical thinking skills developed in Nursing 460 in patient evaluations and care management. Weekly seminars focus on paradigm cases from clinical practice and provide students opportunities for experience in making case presentations. Spring. 104 clinical hours. Prerequisites: Nursing 330, 331, 332, 333, 334, and 460. 4 credits.

469. Nurse Practitioner Residency: Adult Cardiovascular. Provides the student with supervised practice as a nurse practitioner. Clinical experiences focus on the management of common acute and chronic illness through transitions in care. Emphasis is on development of the domains and competencies of nurse practitioner practice in the care of cardiovascular patients. Consent of instructor required. 1 to 4 units. Fall. 100 to 400 residency hours. Prerequisites: Nursing 330, 331, 332, 333, 334, 460, and 461. Variable credit.

470. Oncology Nursing I: Epidemiology and Pathophysiology. Focuses on the epidemiology, pathophysiology, and biobehavioral aspects of cancer across the adult years. Major topics include cancer physiology, prevention, detection, role of the immune system, treatment, and responses to cancer. Spring. 3 credits.

471. Oncology Nursing II: Symptom and Problem Management. Provides the student with a broad framework for coordinating the domains and competencies of advanced practice roles in adult oncology nursing. The Oncology Nursing Society (ONS) Guidelines for Advanced

Oncology Nursing Practice and Competencies in Advanced Practice Oncology Nursing, serve as a framework for examination of problems and symptom management in patients. Case management and case studies are used to explore clinical problems. Summer. 104 clinical hours. Prerequisite: Nursing 470. 3 credits.

478. Clinical Nurse Specialist Residency: Oncology. Provides the student with supervised practice as a clinical nurse specialist in a specialized area of interest including ambulatory/clinic care, inpatient care, bone marrow transplant care, community/preventive care, and home or hospice care. Case management, care maps, case studies, and ONS Guidelines for Oncology Nursing Practice serve as frameworks for the practicum and seminars. 2 to 4 units. Fall, spring, summer. 200 to 400 residency hours. Prerequisites: Nursing 330, 331, 332, 470, and 471. Variable credit.

479. Nurse Practitioner Residency: Adult Oncology. Supervised practice in adult oncology nursing. Management of the care of patients with cancer in ambulatory and inpatient settings. Development of the domains and competencies of nurse practitioner practice in oncology settings. Intense clinical practice under the mentorship of experienced clinicians including performing health assessments; ordering, performing, and interpreting diagnostic tests; determining a plan of care for patients and families; collaborating with the health care team; and referring patients to other health care providers. Seminars encourage the synthesis of clinical learning and the transition to the role of adult nurse practitioner. 1 to 3 units. Fall, spring, summer. 100 to 300 residency hours. Prerequisites: Nursing 330, 331, 332, 333, 334, 442, 470, and 471. Variable credit.

480. Social Issues, Health, and Illness in the Aged Years. Examines diversity in development and adaptation to environmental, social, psychological, and biological changes. Theories of aging, health and aging, intimacy and sexuality, rural-urban health care patterns, minority health care patterns, demographic trends, and death, dying, and loss are discussed. Fall and Spring. 3 credits.

481. Managing Care of the Frail Elderly. Emphasizes assessment, rehabilitation, and management of complex problems of elders who reside in community and institutional settings. Research projects and innovative care strategies are explored. Organizational and managerial effectiveness and consultative roles of the geriatric nurse practitioner/clinical nurse specialist are examined. Fall. 104 clinical hours. Prerequisites: Nursing 330, 331, 332, 333, and 334. 4 credits.

482. Palliative Care in Advanced Practice Nursing. Emphasizes assisting patients with life-limiting illnesses and their families to maintain the best quality of life by integrating psychosocial and ethical issues in the assessment and management of illness. Knowledge in pathophysiology and pharmacological management are systematically integrated. Goals of care are to assist patients and their family in optimizing their function and in providing opportunities for personal growth. Interdisciplinary collaboration is emphasized in the delivery of care. The principles and philosophy of palliative care provide the framework for this course. Fall. Prerequisites Nursing: Adult majors: 330; Pediatric majors: 320, Co-requisites Nursing: Adult majors: 331; Pediatric majors: 321. 3 credits.

487. Clinical Nurse Specialist Residency: Gerontology. This course provides gerontological nurse specialist students with the opportunity to synthesize the knowledge and skills necessary to provide comprehensive care to patients and families within complex health systems. Emphasis is on the integration of knowledge and role development through domains and competencies of nurse specialist practice. Students will practice in sites that are compatible with their professional goals and/or practice needs. 2-4 units. Fall, Spring, and Summer. Variable credit.

489. Nurse Practitioner Residency: Gerontology. Supervised practice as a nurse practitioner in gerontological nursing. Management of common acute and chronic illnesses of the elderly. Development of the domains and competencies of nurse practitioner practice in geriatric care settings. Intense clinical practice under the mentorship of experienced clinicians including performing health assessments; ordering, performing, and interpreting diagnostic tests; determining a plan of care for patients and families; collaborating with the health care team; and referral of patients to other health care providers. Seminars encourage the synthesis of clinical learning and the transition to the role of gerontological nurse practitioner. 1 to 3 units. Fall, spring, summer. 100 to 300 residency hours. Prerequisites: Nursing 330, 331, 332, 333, 334, 442, 480, and 481. Variable credit.

490. Clinical Research Management: Trials Management. Focuses on the overall management of Phase I, II, and III clinical trials in industry, academia, and government settings. Emphasis is placed on development, initiation, and execution of clinical trials. Course content includes intensive training in the processes involved in site evaluation and selection, preparation for investigator meetings, site initiation, site management, clinical research monitoring, auditing and compliance practices, clinical research management tracking and reporting systems, adverse event reporting, data safety review boards, data management, site termination, and clinical trial material. Spring (on-line). 3 credits.

491. Clinical Research Management: Business and Financial Practices. Familiarizes the student with the drug, device, and biologic development industry as a business. The overarching framework is the organizational structure, processes, procedures, and legal and ethical standards common to the industry. Integral to the course is the development/refinement of critical thinking skills with respect to problem solving real life actual and potential problems arising out of drug development. Knowledge of contracts, business ethics, cultural differences, and legal issues will be stressed. Summer (on-line). 3 credits.

492. Clinical Research Management: Regulatory Affairs. Provides the student with an overview of the FDA and regulatory requirements in the drug development process. In-depth content includes: the development and submission of Investigational New Drug Applications, New Drug Applications, Biological License Applications, Orphan Drug Applications; biomedical auditing and compliance; MedWatch and Safety reports; Phase-IV studies and Post Marketing Surveillance; and International Harmonization Guidelines for multinational pharmaceutical development projects. Fall (on-line). 4 credits.

493. Introduction to Clinical Research Data Management: Theory and Practice. This graduate course focuses on data collection, tools, systems, and methods used for clinical research. The course is designed to provide a foundation and working knowledge of data

management topics relevant to research in health care settings. These include health and research informatics, data collection from design and validation, data standards, choosing and using software for data processing and management, and regulations applicable to research data management. Summer (on-line). 3 credits.

498. Synthesis of Specialty Practice (Clinical Research Management, Education, Informatics, or Nursing and Healthcare Leadership, Leadership in Community Based Long Term Care). This course is designed to help graduating students integrate and synthesize prior learning as they transition from the academic environment into advanced practice professional roles in health care. The major goal of the course is to provide opportunities to increase both competence and confidence in the student's ability to perform in the advanced practice role. The course emphasizes synthesis of program content, personal and professional values, creative and critical thinking skills, independent problem-solving, and leadership strategies in the student's chosen area of practice. Fall, Spring or Summer. Variable credit.

502. Health Promotion and Disease Prevention. Provides the student the opportunity to incorporate health promotion and disease prevention assessment and intervention into the health of clients across the life span. Applying the principles of health education, the course prepares students to use the tools and skills necessary to provide health promotion and disease prevention services to individuals, families, groups, and communities. The definition of health and the factors that impact an individual's or group's health framework is the basis for understanding health maintenance interventions. Fall and Summer (ABSN only). 3 credits.

512. Pharmacology of Anesthetic Agents. Addresses uptake, distribution, biotransformation, and excretion of intravenous, local, and inhalation anesthetics, neuromuscular blocking agents, and adjunctive medications used in anesthesia practice. Emphasis is given to mechanisms of drug action, drug effects, factors modifying drug dosage, and adverse responses. Consent of instructor required. Spring. 4 credits.

513. Basic Principles of Anesthesia. Focuses on basic principles of comprehensive perioperative patient assessment, operating room preparation, interpretation of preoperative data, diagnostic reasoning, and perioperative documentation. The anesthesia machine and adjunct equipment, airway management, positioning, and basic concepts of anesthetic administration are also presented. Consent of instructor required. Spring. 3 credits.

514. Anesthesia Pharmacology. This course focuses on developing advanced knowledge of pharmacologic concepts especially as they relate to the anesthetized patient. Pharmacologic mechanisms of action, dose-effect relationships, and time course disposition will be covered. Topics include neuromuscular blocking agents and reversals, local anesthetics, autonomic pharmacology, drug therapy for asthma, and cardiovascular pharmacology. The cost-benefit profiles of these drugs will be examined. Spring. 3 credits.

515. Chemistry and Physics Related to Anesthesia. Investigates the principles of chemistry and physics as applied to anesthesia care, operation of equipment, and operating room safety. Biomedical instrumentation pertinent to anesthesia patient care is described. Consent of instructor required. Summer. 3 credits.

517. Advanced Principles of Anesthesia I. Addresses anesthetic principles associated with specific specialty procedures and management of patients with special problems. Advanced airway management techniques are taught. Principles and anesthetic management for orthopedic, abdominal, gynecology, EENT, and genitourinary procedures are presented. Specific anesthetic considerations and management principles for pediatric and geriatric populations are presented. Consent of instructor required. Summer. 2 credits.

518. Advanced Principles of Anesthesia II. Addresses anesthetic principles associated with specific specialty procedures and management of patients with special problems. Principles and anesthetic management for transplants, obstetric, plastic, burns, cardiovascular, thoracic, neurosurgical, and trauma procedures are presented. Use of advanced physiologic monitoring during anesthetic management is addressed. Consent of instructor required. Fall. 3 credits.

519. Advanced Principles of Anesthesia III. Focuses on nurse anesthesia scope of practice. Pharmacological, anatomical, and technical considerations for the administration and management of selected regional blocks for anesthesia and perioperative pain control is emphasized. Consent of instructor required. Summer. 3 credits.

521. Advanced Pathophysiology for Nurse Anesthetists I. Describes the underlying pathophysiology of selected conditions affecting the cardiovascular, respiratory, musculoskeletal, and renal systems. Implications and effects that various disease states have on anesthesia selection and perioperative management are highlighted. Consent of instructor required. Spring. 3 credits.

522. Advanced Pathophysiology for Nurse Anesthetists II. Describes the underlying pathophysiology of selected conditions affecting the neurological, hematological, gastrointestinal, endocrine, and immunological systems. Implications and effects that various disease states have on anesthesia selection and perioperative management are highlighted. Consent of instructor required. Fall. 2 credits.

524. Physiology and Pathophysiology for Nurse Anesthetists. A study of the physiology and pathophysiology governing respiratory, cardiovascular, neurological, hematological, and renal systems. The course focuses on developing an advanced knowledge base to understand normal physiological and pathophysiologic phenomena as it relates to anesthesia practice. Fall. 3 credits.

526. Professional Aspects of Nurse Anesthesia Practice. Analysis of nurse anesthesia professional associations and councils, legal aspects governing nurse anesthesia practice, hospital and governmental regulator agencies, nurse anesthesia scope of practice, the impaired practitioner, and ethical and professional considerations relating to the nurse anesthesia profession. Consent of instructor required. Fall. 3 credits.

529. Clinical Anesthesia Practicum. Graduated, guided instruction in the clinical management of patients receiving various types of anesthesia. Selected topics, journal articles, and case reports are presented, critically analyzed, and discussed by presenters and participants at a clinical and literature review conference. Students must complete seven rotations to meet degree requirements. 1-5 days/week. Fall, Spring, Summer. 1 credit per rotation.

531. Medical Spanish and Cultural Competency for Health Care Beginner Level I.

Con conversationally focused language course designed to develop beginning cultural competency and beginning language skills in medically focused Spanish language. The course is appropriate for anyone who works in the health care field and wants to acquire a basic level of medical Spanish. Conversational Spanish as spoken in Latin America is emphasized. Aspects of Latin American culture, especially those most pertinent to health care, are included in each lesson. Fall, Spring, Summer. 1 credit.

532. Medical Spanish and Cultural Competency for Health Care Beginner Level II.

Con conversationally focused language course designed to build on the beginning cultural competency and beginning language skills from medically focused Spanish language acquired in Beginner Level I. The course is appropriate for anyone who works in the health care field, has previous background in basic Spanish, and wants to acquire more skill in medical Spanish. Conversational Spanish as spoken in Latin America is emphasized. Aspects of Latin American culture, especially those most pertinent to health care, are included in each lesson. Fall, Spring, Summer. 1 credit.

533. Medical Spanish and Cultural Competency for Health Care Intermediate Level I.

Con conversationally focused language course designed to build on the cultural competency and language skills from medically focused Spanish language acquired in Beginner Level II. The course is appropriate for anyone who works in the health care field, has completed two or more courses in basic Spanish, and wants to acquire more skill in medical Spanish. Conversational Spanish as spoken in Latin America is emphasized. The class is conducted as much as possible in Spanish, and students are expected to have mastered the content in Nursing 531 and Nursing 532. Aspects of Latin American culture, especially those most pertinent to health care, are included in each lesson. Fall, Spring, Summer. Prerequisites: Nursing 531, 532, advanced basic Spanish, or consent of instructor. (Medical vocabulary is not a prerequisite.) 1 credit.

534. Medical Spanish and Cultural Competency for Health Care Intermediate Level II.

Con conversationally focused language course designed to develop advanced language skills in medically focused Spanish. The course is appropriate for anyone who works in the health care field, has already progressed in Spanish language to an intermediate level, and wants to advance their Spanish language skills toward fluency. Conversational Spanish as spoken in Latin America is emphasized, and the class is conducted almost entirely in Spanish. Aspects of Latin American culture, especially those most pertinent to health care, are included in each lesson. Fall, Spring, Summer. Prerequisites: Nursing 533, intermediate Spanish, or consent of instructor. 1 credit.

Appendix G. Examples of Potential Electives for DNP Students Subject to Approval by Faculty of Record

Divinity School

Christian Ethics

220. Ethical Topics. A seminar on contemporary ethical issues, the specific content in any given semester to be designated by the Theological Division. May be repeated for credit. Instructor: Staff. One course.

244. Interdisciplinary Seminar in Medical-Legal-Ethical Issues. A seminar composed of students and faculty from the Medical, Law, and Divinity Schools for critical consideration of selected pertinent issues of mutual professional interest. Consent of instructor required. Instructor: Staff. One course.

292. Happiness, the Life of Virtue, and Friendship. An investigation of the interrelation of these themes in selected authors. An examination of whether the loss of the interrelation of these themes accounts for some of the problems of modern philosophical and theological ethics. Instructor: Hauerwas. One course.

World Christianity

211. Healing in the Developing World and Care of the Underserved: Medical and Theological Considerations. The course pays particular attention to issues of religion, especially the ways in which an appreciation of religious and theological issues can be helpful in developing a non-colonial perspective when providing care in a developing country or with the underserved in the USA. The development of health ministries cross-culturally will be a theme throughout the course. Instructors: Walmer. One course.

Health and Nursing Ministries

290. Seminar on Care at the End of Life: Suffering and Dying Well. In this course, students examine contemporary efforts to recover the ancient practice of *ars moriendi*, the "art of dying." Students examine the phenomena of chronic illness, suffering, and dying from a variety of historical, biblical, theological, medical-physiological, and psychosocial perspectives. Students also examine contemporary modalities of care for persons at the end of life, including tertiary palliative care, the hospice movement, and ancillary "death with dignity" organizations. Course goals include developing the student's ability to imagine ways of caring for individuals with chronic and terminal illness. Instructors: Breisch and Keck. One course. C-L: Pastoral Care 290

300. Seminar in Health and Nursing Ministries. Students work toward the development of a philosophy of faith-based health care grounded in the core practices and the corresponding central theological commitments of their respective religious communities. Under the leadership of faculty from both the School of Nursing and the Divinity School, students analyze contemporary theories and practices of health care; particular attention given to the complex relationship between faith and health. Prerequisites: Health and Nursing Ministries 11, 12, 200, 290, and Nursing 502. Instructors: Breisch and Meador. One course.

Graduate School

Biology

278S. Genetic Basis of Behavior. The relationship between genotype and behavioral phenotype. Readings from the primary literature, including papers on humans, lab mice, and wild animal populations. Exploration of two philosophical topics: the question of causality in the natural world and the question of determinism in biology. Short research paper required. Instructor: Alberts. 3 units.

Nursing

601. Philosophy of Science and Theory Development. Focus is on the purposes of science, scientific process, and knowledge development as debated in current literature. Debates arising from different philosophic traditions (e.g., rationalism, empiricism) inform discussion about the nature of the nature of science and Nursing's past, present, and future directions in theory and knowledge development. The student will apply knowledge gained to concept analysts and refinement and theory construction related to trajectories of chronic illness and care systems. Permission of department required. Instructor: Staff. 3 units.

Public Policy Studies

209S. Global Issues in Population and Development. Relationship of population growth to economic development and to natural resource and environmental pressures. Causes and impacts of population change, including economic models of fertility, mortality, marriage, and migration. An overlay of comparative cultural factors that affect decision-making, with particular attention to impacts of gender. Research project required. Prerequisite: Economics 105 or 149; and Economics 110 or 154. Instructor: Kelley. 3 units. C-L: Public Policy Studies 209S

229S. Poverty, Inequality, and Health. Impact of poverty and socioeconomic inequality on the health of individuals and populations. Attention given to both United States and non-United States populations. Topics include the conceptualization and measurement of poverty and socioeconomic inequality; socioeconomic gradients in health; globalization and health; socioeconomic deprivation across the life-course and health in adulthood; and public policy responses in the United States and elsewhere to growing health inequities in the age of globalization. Prerequisite: An introductory course in statistics. Seniors and graduate students only. Instructor: James. 3 units. C-L: African and African American Studies 229S

239. Nonprofit Leadership and Management. The impact of nonprofit organizations on public policy making; management and leadership skills for nonprofit organizations; laws affecting nonprofit organizations. Instructor: Staff. 3 units.

254. Multidisciplinary Approaches to Global Health. Students are introduced to the multidisciplinary theories and techniques for assessing and addressing infectious, chronic, and behavioral health problems in less wealthy areas of the world. The course addresses global health issues from disciplines such as: epidemiology, biology, engineering, environment, business, human rights, nursing, psychology, law, public policy, and economics. For example, obesity can be examined in terms of: differential rates around the world; biological and psychological

causes; environmental differences; ethics of subsidizing nutritious foods; policies limiting the availability of wealthy nation fast food; the economics consequences of the disease, and intervention. Instructor: Staff. 3 units.

Law School

364. Global Health. The course is designed to provide students with multidisciplinary theories and techniques for assessing and addressing infectious, chronic, and behavioral health problems in less wealthy areas of the world. Instructor: Whetten. 3 units.

347. Health Care Law and Policy. Surveys the legal environment of the health services industry in a policy perspective. Instructor: Havighurst. 3 units.

Medicine

DOCTOR OF MEDICINE

Community and Family Medicine

COMMFAM-221C. Practical Clinical Nutrition. This course will cover the topics in clinical nutrition that will be of most use to medical students interested in primary care. Participants will have a chance to observe and practice interviewing and counseling skills. Topics will include weight management, eating disorders, diabetes, hypertension, cancer, pregnancy, middle age, elderly, and addictive behaviors, and population-based nutrition. Enrollment Max. 10. *Murphy, G. and Alphin, F.*

Interdisciplinary

INTERDIS-110B. Global Health. This unique course brings together some of the outstanding professors from across Schools and Departments at Duke University to address issues of Global Health. The course is designed to provide students with multidisciplinary theories and techniques for assessing and addressing infectious, chronic, and behavioral health problems in less wealthy areas of the world. The course will address global health issues from the disciplines of: epidemiology; biology; medicine; nursing; law; ethics; policy; psychology; sociology; anthropology; environment; engineering; that represent major disease burden overview of public health, focusing on the prevention of diseases and health problems. After a brief review of public health history and epidemiologic methods, we will discuss organizational structures and their roles in defining, preventing and managing public health problems. We will explore selected health problems or issues from a health services research perspective, and discuss their health policy implications. C-L PUBPOL 264.01 Credit: 0. *Whetten*

INTERDIS-155B. Beginner Medical Spanish Elective. The Medical Spanish Elective (MSE) offers 2 hours per week of medical Spanish language classes to first year Duke Med students. Students are stratified based on incoming language level assessed during a phone entrance interview during the summer. In addition, course participants volunteer for a minimum of 10 hours in the Latino community in Durham and attend 4-5 lectures about Latino health issues with

UNC medical students who are interested learning about the language and culture of the growing Latino community which makes up a substantial portion of the patient population of Durham and the United States. No credit: *Clements*

INTERDIS-424C. Healing/Developing World and Care of the Underserved. 'Healing in the developing world and care of the underserved' is a course that evolved out of a local community ministry called Family Health Ministries, Inc. (www.familyhm.org). In 1997, Duke Students asked members of Family Health Ministries to take them Haiti. Then they asked us to help them prepare for the trip and finally they asked to get course credit for the time that they spent preparing for the trip. Hence, faculty members from the medical and divinity schools are now involved and IND304C and WXTIAN211 were born. This course is part of the medicine & theology curriculum. Undergraduate, medical, PA, nursing and divinity students have all participated. This is a course that developed out of student interest and demand. What will you get out of this class if you participate? Our goal is the change the way you think. You might look at the world differently. You might have your life radically changed in a positive way? Have you ever had instructors that encouraged you to think outside of the box? For many of us, the course content has radically changed the way that we think and interact with others in our daily lives. The lessons taught in the course are those that we learned from the poorest, uneducated people in this half of the world. The course encourages students to put stereotypes aside and to find educational resources in places where resources are scarce. Education can occur in a classroom or on the street. Some of life's greatest lessons come from solving problems. People in developing countries deal with problems that we can not fathom. In this course, you will come in contact with those people and learn from them. For more information, please contact Dr. Walmer at 681-7904 or via email at david.walmer@duke.edu. Credit: 2. *Walmer (Med) and Berger (Divinity)*

Molecular Genetics and Microbiology

MGM-253B. Genetic Analysis of Human Disease. This course introduces the student to quantitative and molecular aspects in the identification of human disease genes, implications for genetic counseling and risk assessment, and legal and social issues associated with the human genome initiative. The course draws extensively from the scientific literature to illustrate concepts of linkage analysis in Mendelian and complex disease, molecular approaches to disease gene cloning, molecular mechanisms of disease gene expression, gene therapy, and the utility of animal models for understanding human disease. CL: Graduate School. Credit: 2. *Speer, Vance, Pericak-Vance, Marchuk*

Psychiatry

PSYCHTRY-327B. Ethnic and Minority Health Patterns and Problems. Descriptive and analytical focus on the literature about ethnic and minority health patterns in the United States, the issues inherent therein, and the implications thereof for the delivery of medical services. Credit: 4. Enrollment: min 1. *Carter and Anderson-Brown*

DOCTOR OF PHYSICAL THERAPY

PT-D-311. Neurosciences. This course covers the anatomy and physiology of the nervous system. The student is introduced to concepts and terminology. Detailed neuroanatomy of the peripheral and central nervous system is presented. The neurophysiological basis of motor control is addressed, including sensory and motor systems, memory, cognition, and neural plasticity. Lectures, laboratory exercises, and problem-solving sessions are included. Credit: 4.

PT-D-312. Embryology, Histology, Pathology and Tissue Biomechanics II. This is the first of a two-semester/session course. The course covers topics of embryology from conception through birth, as well as tissue structure and major function of the cells and tissue of the body. Pathology and disease is integrated within the course. Diseases commonly seen in patients receiving physical therapy are presented. Body responses to injury and disease are traced from the cellular level to the systems level. Topics in this course include: structure and function of the cells and tissues of the body, tissue diversity, histology of major organs, basic cellular anatomy, developmental biology / embryology, cell structure, function, cell diversity and cell communication and pathology. The course also presents the basic science of tissue biomechanics, and the response of muscle, bone joints, and soft tissue to disease and injury. The normal repair process and the effects of physical therapist's interventions including rest, stress, stretch, resistance, immobilization and work are discussed. Complications and benefits of interventions, the effects of nutrition, aging, exercise and immobility are discussed. Credit: 3.

MASTER OF HEALTH SCIENCES DEGREE PROGRAM

The Clinical Leadership Program

CLP-200. Perspectives on Health Care. Under the direction of a senior faculty leader, students will explore the principles behind the forces impacting the dynamic health care environment. Building upon topics covered in the complementary core course, "Population-Based Approaches to Health Care," students will be exposed to current issues and strategies regarding population analysis and decision-making through the use of case studies and interaction with leaders in health care planning, financing, and programming. Credit: 2. *TBA*

CLP-201. Health Care Finance: Barriers and Opportunities for Change. This seminar will focus on leadership skills for effecting change while demonstrating sound fiscal judgment. Students will apply financial management and budget planning skills gleaned from the complementary core course, "Fundamentals of Healthcare Finance," as well as management theory covered in "Managing Complex Health Care Systems," to case studies and current situations of various health care settings. Duke Health System leaders will expose students to examples from the evolution of and current issues facing health systems as a basis for exploring management principles and leadership skills for effecting change that reflects fiscal responsibility. Credit: 2. *TBA*

CLP-202. Organizational Structure and Use of Data to Support and Manage Change. Through interaction with leaders from the private and public health care sectors, students will analyze the current state of health care delivery in the United States with a focus on the impact of changing organizational structures and rapidly advancing technologies. To provide further

exploration of specific topics covered in the core courses, "Introduction to Health Care Policy" and "Introduction to Medical Informatics," discussion leaders will focus on the health care workforce, the economic framework of the health care industry, changing private and public responsibilities, and opportunities for entrepreneurial endeavors. Credit:

CLP-204. Leading in a Chaotic Environment. Students will meet with industry experts on health care law and policy to work through case studies in risk, regulation, and antitrust. Credit: 2. *TBA*

CLP-206. Quality Measurement and Management. The course provides a survey of all related aspects of quality management including a review of HEDIS, NCQA, JCAHO structures and guidelines. Special emphasis is placed on outcomes, clinical guidelines, evidence-based medicine, disease management, interdisciplinary team care, CQI/TQM, role of purchaser, and patient satisfaction. Credit: 3. *Bradley*

PHYASST-450. Introduction to Health Care Policy. An introduction to the U.S. health care system. A lecture series taught by an interdisciplinary faculty and by community experts in health care policy and organization. Topics include major determinants of health and disparities, how health care is organized, delivered and financed in the U.S., health law and regulation, international comparisons and future trends .3 Credit. *Conover, Strand* (Not offered each year.)

The Clinical Research Training Program

CRP-243. Introduction to Medical Genetics. This course provides fundamental knowledge in human genetics and genetic systems of the mouse and other model organisms. Topics include: introduction to concepts of inheritance (DNA, chromatin, genes, chromosomes); the human genome (normal genetic variation, SNPs, comparative genomes, molecular mechanisms behind inheritance patterns, and mitochondrial genetics); mouse genetics (classical mouse genetics, genotype- and phenotype-driven approaches, QTL mapping); microarrays (expression, genomic, ChIP (chromatin IP on chip), bioinformatics and use of genome databases); genetic association studies (haplotype blocks, study design in complex disease and approaches to complex disease gene identification, pharmacogenetics and pharmacogenomics). Credit: 2.

CRP-249. Health Services Research. Research methods in health services research are explored. Topics include measurement of health-related quality of life, case mix and comorbidity, quality of health care, and analysis of variations in health care practice. The course emphasizes the design and analysis of health services interventions and their influence on health outcomes. Advantages and disadvantages of studies that use large databases, as well as advanced methods in analysis and interpretation of health services outcomes are addressed. This includes application of traditional research designs (e.g., randomized trials) to address health services research questions and the interface between health services research and health policy. Prerequisites: CRP-242 and CRP-245. Credit: 2.

CRP-250. Genetic Analysis of Human Disease. This is an introduction to quantitative methods associated with the analysis of human genetic data, with an emphasis on applied projects aimed at identifying genes leading to human disease. The course provides an overview of modern techniques in the analysis of complex human disease with a focus on statistical techniques.

Topics include: how a trait is determined to have a genetic component; testing Hardy-Weinberg equilibrium, utilization of linkage maps; detection and location of genes using linkage disequilibrium and other methods; gene-environment interactions; and a molecular overview of DNA techniques and evolving methodologies (SNPs, microarray analysis, etc.). Students are introduced to specialized software and internet-based resources for the analysis of genetic data. Prerequisites: CRP-241 and CRP-243. Credit: 2.

PSY 270QS-01/N610 Community Intervention Research . *Community Based Prevention Intervention Research.* The course reviews theories, methods and evaluation of health promotion and disease prevention interventions. The course is designed for students to develop applied skills in community based research methodology, with an emphasis on prevention intervention research. Areas of focus will include the establishment of community partnerships for intervention planning and implementation, use of formative research in the development of community interventions, development of a prevention intervention, practical procedures for use in the implementation of intervention research, strategies for community involvement in the dissemination of research findings, and opportunities for the conduct of translational/effectiveness research. Topics will include HIV/AIDS, cancer, cardiovascular disease, reproductive health, and psychiatric/mental health, and be of domestic and international relevance. The course combines didactic presentations, discussion, research critiques and development of a research proposal. Students will participate in a peer review process to evaluate and give feedback on prevention intervention research proposals. Instructor: Sikkema