HEALTH RELATED SCIENCES, DOCTOR OF PHILOSOPHY (PH.D.) WITH A CONCENTRATION IN RADIATION SCIENCES

Program mission/purpose
The program will provide experienced health professionals with advanced knowledge and skills so that they may assume positions in teaching, research and administration upon graduation. It offers a curriculum with an interdisciplinary core of courses with concentrations in clinical laboratory sciences, gerontology, health administration, nurse anesthesia, occupational therapy, patient counseling, physical therapy, radiation sciences and rehabilitation leadership. The program emphasizes use of distance-learning technologies combined with traditional didactic methods. The curriculum is relevant, timely and meaningful to a multidisciplinary cohort of students.

Program goals
1. The program will provide students with the ability to understand and conduct research in health-related sciences.
2. The program will provide the student with the ability to analyze alternatives and develop responses in their disciplines to address the current and future challenges in health care.
3. The program will provide students with the skills to educate health professionals in their discipline using current principles of teaching and curriculum development.

Student learning outcomes
Students completing this doctoral program will:
1. Demonstrate the ability to conduct research, understand issues, design and execute research plans, analyze research results, and present conclusions in the area of interdisciplinary health care using the appropriate methods
2. Demonstrate an in-depth knowledge in the area of specialization
3. Exhibit competency in translating research knowledge and principles into applied practice perspectives and skills
4. Display educational expertise in current principles and content of the allied health sciences and teach in the area of interdisciplinary health care practice
5. Display the ability to examine current issues and future changes in the health care environment from an interdisciplinary perspective
6. Exhibit knowledge and understanding of professional and ethical responsibility and conduct in the allied health professions
7. Demonstrate knowledge and understanding of the importance of cultural diversity in the delivery of health care and the formulation of health policy

VCU Graduate Bulletin, VCU Graduate School and general academic policies and regulations for all graduate students in all graduate programs
The VCU Graduate Bulletin website documents the official admission and academic rules and regulations that govern graduate education for all graduate programs at the university. These policies are established by the graduate faculty of the university through their elected representatives to the University Graduate Council.

It is the responsibility of all graduate students, both on- and off-campus, to be familiar with the VCU Graduate Bulletin as well as the Graduate School website (http://www.graduate.vcu.edu/) and academic regulations in individual school and department publications and on program websites. However, in all cases, the official policies and procedures of the University Graduate Council, as published on the VCU Graduate Bulletin and Graduate School websites, take precedence over individual program policies and guidelines.

Visit the academic regulations section for additional information on academic regulations for graduate students. (http://bulletin.vcu.edu/academic-regs/)

Degree candidacy requirements
A graduate student admitted to a program or concentration requiring a final research project, work of art, thesis or dissertation, must qualify for continuing master’s or doctoral status according to the degree candidacy requirements of the student’s graduate program. Admission to degree candidacy, if applicable, is a formal statement by the graduate student’s faculty regarding the student’s academic achievements and the student’s readiness to proceed to the final research phase of the degree program.

Graduate students and program directors should refer to the following degree candidacy policy as published in the VCU Graduate Bulletin for complete information and instructions.

Visit the academic regulations section for additional information on degree candidacy requirements (http://bulletin.vcu.edu/academic-regs/grad/candidacy/). (http://bulletin.vcu.edu/graduate/study/general-academic-regulations-graduate-students/degree-candidacy/)

Admission to candidacy
Students are eligible to begin their dissertations upon written certification by the program director and associate dean of the Graduate School that all predissertation/research requirements, including the comprehensive examinations, have been satisfied and that the student is prepared to proceed with the dissertation/research project. Copies of the certification will be forwarded to the student, the student’s formal program adviser and the dean of the College of Health Professions. After admission to candidacy, students will proceed to propose, complete and defend their dissertations or three journal articles research requirement.

Enrollment requirement
Students are required to maintain continuous enrollment in ALHP 899 until completion of the requirements, including the defense process.
Dissertation and published research requirements

Dissertation/research committee
After successful completion of the comprehensive exam, the student nominates a dissertation/research committee, and the dissertation/research director submits the nominations in writing to the program director. Such committees will consist of a minimum of four graduate faculty members, one of whom will be outside the student’s concentration area. The program director will provide written approval of the dissertation/research committee and clear such appointments with the appropriate administrative officials.

Dissertation/research standards
The dissertation or publishable research articles must represent independent research and should be based on original research question or hypothesis. Generally, dissertations or publishable research articles will demonstrate the student’s ability with empirical research, adhering to canons of (1) logic in conceptualization and design, (2) valid and reliable measurement, (3) appropriate analytic technique and (4) appropriate interpretation of results. Studies should be based on a formal theoretical or conceptually explicit framework for investigating a question or testing a hypothesis relevant to the allied health field.

Graduation requirements
As graduate students approach the end of their academic programs and the final semester of matriculation, they must make formal application to graduate. No degrees will be conferred until the application to graduate has been finalized.

Graduate students and program directors should refer to the following graduation requirements as published in the Graduate Bulletin for a complete list of instructions and a graduation checklist.

Visit the academic regulations section for additional information on graduation requirements (http://bulletin.vcu.edu/academic-regs/grad/graduation-info/). (http://bulletin.vcu.edu/graduate/study/general-academic-regulations-graduate-students/graduation-requirements/)

Program completion requirements
The doctor of philosophy degree is awarded after (1) the minimum 51 credit hours of course work are completed, (2) comprehensive exams are passed, and (3) either a dissertation is written and defended orally or three first-author articles of publishable quality (on research undertaken by the doctoral candidate once enrolled in the program) are written and defended orally. The journal articles will be scrutinized for quality of scholarship by an internal research committee headed by the student’s research adviser. All three articles must be approved by the internal research committee prior to submission.

Other information

Student handbook
A student handbook will be made available to all admitted students in their cohort organizations in Blackboard.

Facilities
The administrative offices for the program are located on the MCV Campus, at 1200 E. Broad St. (West Hospital, First Floor, East Wing).

Advising
Upon admission to the program, students will be assigned an interim adviser to guide them through the core courses and assist them as they consider their areas of research. All program advisers will have an earned doctorate and be members of the university’s graduate faculty.

Students may change their interim advisers as their programs of study and interests evolve, if approved by the program director. Although discouraged, some students may wish to switch their area of concentration (changing from the department through which they were initially admitted to the program). Students who want to change concentration area must petition the doctoral program director. The petition must be approved by the program director, the DPAC and the appropriate department chair. There is no guarantee that the applicant will be accepted into the new concentration.

After successful completion of the comprehensive examinations, students will choose a dissertation chair that will serve as adviser and guide them through the research/dissertation process.

Computer requirements
All students admitted to the program must have a personal computer manufactured within the past two years and access to a high-speed Internet connection.

Apply online at graduate.admissions.vcu.edu (http://wwwgraduate.admissions.vcu.edu).

Admission requirements

<table>
<thead>
<tr>
<th>Degree:</th>
<th>Semester(s) of entry:</th>
<th>Deadline dates:</th>
<th>Test requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D.</td>
<td>Fall (begins end of June)</td>
<td>Mar 15 (Jan 15 for priority consideration; after Mar 15 considered on space-available basis)</td>
<td>GRE or MAT</td>
</tr>
</tbody>
</table>

Special requirements

- It is recommended that prospective applicants contact the program in advance of submitting an application to discuss research interests and the program’s blended structure. When required, applicants must have a minimum Test of English as a Foreign Language score of 600. The Ph.D. program in health related sciences utilizes two six-month semesters per year (January through June and July through December), which include both on- and off-campus components.

In addition to the general admission requirements of the VCU Graduate School (http://bulletin.vcu.edu/graduate/study/admission-graduate-study/admission-requirements/), applicants must meet the following criteria:

1. Have an earned master’s degree in an academic or allied health-related field from an accredited college or university; preference will be given to applicants who have a minimum cumulative GPA of 3.3 on master’s-level work (The master’s degree should be in one of the departmental areas of choice of concentration.)
2. Have GRE (verbal, quantitative and analytic writing) or MAT scores from within the past five years (This requirement will not be waived.)
3. Have completed a graduate course in statistics (including topics such as random variables, probability, distributions, descriptive statistics,
hypothesis testing and inferential statistics) with a minimum grade of B.
4. Demonstrate a record of professional competency and success.
5. Articulate clear professional and educational goals and written communication skills through the submission of a written essay.
6. Have any additional qualifications/certifications of the individual concentration.

Prior to reviewing an application for admission, the program must receive:

1. A completed application form from the applicant, including:
   a. Three letters of recommendation, two of which preferably are from sources qualified to assess the candidate's academic potential.
   b. A written statement of intent that discusses career goals and the manner in which this doctoral program will enhance those goals and what the applicant expects to contribute to this program.
   c. A curriculum vitae.
2. Official transcripts indicating completion of baccalaureate and master's degrees (or equivalent) from an accredited college or university.
3. GRE or MAT scores.

Applicants whose applications are incomplete will be contacted periodically regarding missing materials. Incomplete applications will be held in the director's office until all materials are received.

Completed applications will be sent to the respective departmental representative of the College of Health Professions Doctoral Program Advisory Committee. Each department will then rank qualified applicants to its concentration and, based on a review of the application, a personal interview will be scheduled at the department's discretion for the top candidates.

The DPAC will meet to hear presentations from the departmental representatives regarding their rankings and recommendations and will then make final recommendations regarding the incoming class. The director and the dean of the College of Health Professions are responsible for the final decision.

Applicants will be notified by the Graduate Admissions office regarding the admission decision.

1 Applicants must be certified by one of the following: ARRT, NMTCB or ARDMS.

Degree requirements

In addition to general VCU Graduate School graduation requirements (http://bulletin.vcu.edu/academic-regs/grad/graduation-info/), students must successfully complete a total of 51 credit hours (18 credit hours of common interdisciplinary core courses, 12 credit hours of research methods core courses, nine credit hours of concentration courses and 12 credit hours of dissertation research), two comprehensive examinations, a research proposal defense and the final dissertation defense.

Curriculum structure

The proposed curriculum is designed to take four years to complete. Students spend the first two and one-half years (six-month-long semesters) completing course work. The final year and one-half is spent developing the doctoral dissertation. Research components are present in each year of the program, and a research emphasis is present throughout the entire curriculum. Students are required to designate the area of intended research in their concentration areas in the first year.

Each of the five course-work semesters is composed of both on- and off-campus components. On-campus sessions, scheduled during the end of June and beginning of July and at the beginning of January, will employ a rather traditional mix of educational technologies (e.g., lectures, seminars and assigned reading). During the off-campus component of each semester, students pursue their studies employing a wide variety of innovative educational technologies (e.g., computer conferencing, computer-aided instruction, videotape packages and programmed instructional material), in addition to assigned readings and the completion of various assignments and projects. Upon completion of the five semesters of course work, students are required to return to campus each semester until a research proposal has been developed and successfully defended.

Continuation requirements

After admission to the Ph.D. program, the student must maintain a minimum cumulative GPA of 3.0 in all of the course work completed at VCU. A student who falls below that minimum will have one semester to remedy the deficiency. Even with an overall minimum GPA of 3.0, a student may earn no more than two (six credit hours) grades of C. Students who receive a grade of D or F will be reviewed for continuation in the program by the department of their concentrations.

Students are expected to maintain continuous enrollment while in the program. Following the completion of the core course work, students must register for at least one credit hour each fall and spring semester for continuation in the program. A student who fails to register must have advance approval to do so or will be dropped automatically from the program and must reapply for reinstatement. The maximum time to complete all of the requirements for the degree is eight calendar years from the date of entry into the program.

Course transfer or waiver

A maximum of 25 percent of the course work other than research may be transferred from another VCU program or outside institution and applied toward the Ph.D. course requirements. Transfer and waiver credit is given at the discretion of the program director after consultation with appropriate faculty members, subject to university approval. Courses taken as requirements for other degrees are not transferable. A waiver may be warranted if an equivalent course was taken. However, another course must be substituted for the waived course in order to fulfill the requisite 51 credit hours needed for degree completion.

Comprehensive examination

The purpose of the comprehensive examination is to provide a vehicle through which students can demonstrate the ability to integrate their educational experiences by adequately addressing complex questions pertinent to the current and developing knowledge of the allied health fields. Students are eligible to take each of the two comprehensive examinations upon successful completion of the appropriate core course work. The core exam must be taken within six months of completing the methods exam.

Two written examinations will be administered, one for the common interdisciplinary core and one for the research methods core. A three-member graduate faculty committee will develop and administer each exam. This committee will be made up of two members of the core...
Curriculum requirements

The program curriculum consists of a total of 51 credit hours (18 credit hours of common interdisciplinary core courses, 12 credit hours of research methods core courses, nine hours of specialty concentration courses and 12 hours of dissertation research).

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ALHP 701</td>
<td>Health Services Delivery Systems</td>
<td>3</td>
</tr>
<tr>
<td>ALHP 702</td>
<td>Finance and Economic Theory for Health Care</td>
<td>3</td>
</tr>
<tr>
<td>ALHP 708</td>
<td>Ethics and Health Care</td>
<td>3</td>
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<tr>
<td>ALHP 712</td>
<td>Curriculum and Communication Design for Health Care Professionals</td>
<td>3</td>
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<tr>
<td>ALHP 716</td>
<td>Grant Writing and Project Management in Health Related Sciences</td>
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<td>ALHP 718</td>
<td>Health Informatics</td>
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<tr>
<td>ALHP 760</td>
<td>Biostatistical Methods for Health Related Sciences</td>
<td>3</td>
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<tr>
<td>ALHP 761</td>
<td>Health Related Sciences Research Design</td>
<td>3</td>
</tr>
<tr>
<td>ALHP 762</td>
<td>Multivariate Statistical Methods for Health Related Sciences Research</td>
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</tr>
<tr>
<td>ALHP 763</td>
<td>Clinical Outcomes Evaluation for Health Related Sciences</td>
<td>3</td>
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<tr>
<td>ALHP 768</td>
<td>Biostatistical Methods for Health Related Sciences</td>
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</tr>
<tr>
<td>ALHP 781</td>
<td>Doctoral Seminar in Health Related Sciences</td>
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<tr>
<td>ALHP 792</td>
<td>Independent Study (three credit hours required)</td>
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<td>ALHP 793</td>
<td>Research Practicum</td>
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<td>ALHP 890</td>
<td>Dissertation Seminar</td>
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<td>ALHP 899</td>
<td>Dissertation Research (nine hours required)</td>
<td>3</td>
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<td>Total Hours</td>
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The minimum total of graduate credit hours required for this degree is 51.

Sample plan of study

**Semester 1**

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**Semester 2**

<table>
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