I. Approval of Minutes

The minutes from January 20, 2005, were approved as written.

II. Proposal from Pharmacy to allow a limited number of 7XX courses on a PhD program of study in specific degree programs

Theresa Filtz (Pharmacy) and Gary Delander, chair of the Department of Pharmaceutical Sciences, presented the following report/request to the Graduate Council:

Proposal: To allow up to 15 credits of 700 level—scientific and technical professional degree—courses in a Masters or PhD program of study.

Rationale: A critical shortage of research-trained health professionals is impeding the ability of health professional schools to attract and retain academic research faculty. Increasing the number of dual PharmD/PhD degree holders is one pathway to increasing the number of research-trained practitioners in academic health sciences. Demand for dual degree holders is high, supply is extremely low. To increase the appeal of the dual degree program, strategies must be developed to decrease the time from completion of the PharmD (4 years post-BS) and the PhD (~5 years post-BS) degrees from a minimum of consecutive nine years. Extant PharmD/PhD programs attempt to compress this timeline by allowing for the inclusion of PharmD courses in PhD programs of study and vice versa, using summer sessions to initiate research while between PharmD training years, and focusing research on clinically relevant topics (see Appendix I, programs of study for dual degree programs at Colleges/Schools of Pharmacy).

Additionally, the NIH is placing increased emphasis on translational research, i.e. research with applicability to solving human health problems, requiring some appreciation of clinical problems by basic science researchers. Biomedical PhD programs, including programs in pharmaceutical sciences, have always included training in medically relevant topics, e.g. human drug metabolism, drug action, drug development. Graduate PhD training in pharmaceutical sciences naturally includes overlap with topics covered in basic pharmacy sciences courses developed for PharmD professional students. For example, a pharmaceutical sciences PhD student concentrating in pharmacology would naturally take a year of Human Pharmacology (Drug Action) as
part of standard coursework. At other Universities, pharmacology PhD students frequently take this course alongside medical, pharmacy, dental or other health professional students in the same classroom.

To better develop a PharmD/PhD dual degree program at OSU, and to simplify overlapping course offerings for PharmD pharmacy professional students and PhD pharmaceutical sciences students, we are proposing to allow PhD students in pharmaceutical sciences to include 15 credits of 700 level pharmacy professional courses on their graduate programs of study. A proposed concurrent PharmD/PhD degree program description is included in Appendix II.

In relation to the outcomes expected of PhD training in pharmaceutical sciences (Appendix III), the 700 level courses will aid in fulfilling outcome #1, requiring that doctoral students acquire and understand a substantial body of knowledge which is at the forefront of studies in pharmacology, natural products chemistry, bio-organic chemistry, pharmaceutics, drug metabolism, or drug toxicity.

The learning objectives associated with 700 level courses in the college of pharmacy are, we feel, of a sufficient rigor to comprise a graduate level learning experience. The stated characteristics of a 500 level graduate course (from the OSU Graduate catalog) are: 1) They require upper-division prerequisites in the discipline. 2) They require an extensive theoretical base in the discipline. 3) They increase or re-examine the existing knowledge or database of the discipline. 4) They present core components or important peripheral components of the discipline at an advanced level. Courses in the PharmD curriculum meet these requirements in various ways. The PharmD program requires upper-division prerequisites (See Appendix IV, Prerequisites for entry into the PharmD program). For example, either 400 level Physiology or 400 level Biochemistry is a pre-requisites for entry into the professional program and are prerequisites for the Phar 752, 753, 754 series, Pharmacology and Medicinal Chemistry. Pharmacy professional students are expected to integrate prior knowledge from multiple disciplines including physiology, chemistry, biochemistry, cell biology, and statistics. They are required to synthesize information from primary sources and evaluate drug choices based on principles. The courses present drug information at the cutting edge of current knowledge and challenge students to anticipate future advances in the field. One caveat of many 700 level pharmacy courses is that they are often large, with 80 students present. Therefore, we would suggest limiting the number of 700 level courses on a graduate program of study to 15 credits. Additional 500 level coursework and thesis research would address the remaining outcomes revolving around techniques and research project development and completion.
John Selker (Agricultural Sciences) suggested that, if 7XX courses are to be approved for use on graduate programs, they should be subjected to the Category II review process, which is used to gain approval for any other graduate course. Sally Francis (Graduate School) questioned the use of an asterisk if the courses were submitted as 400/500 courses because of the confusion about the role of a 400* course. Lynda Ciuffetti (Science) asked whether it would be appropriate to create 500/700 slash courses to avoid confusion about the role of the course in undergraduate education.

Dan Rockey (Veterinary Medicine) pointed out that his college, which uses 7XX courses for the Doctor of Veterinary Medicine (DVM) degree program, shares the interest of the College of Pharmacy in the use of selected 7XX courses on a graduate program of study.

The main question explored during the discussion was whether the Pharmacy 700 level courses meet the rigor required for graduate level learning. Filtz and Rockey argued that this is not the point. Professional (7XX courses) are more advanced and demanding than undergraduate courses, but they have a fundamentally different character from courses designed to prepare a future researcher.

Some confusion arose about the current policy toward use of 4XX courses on a program of study. Ciuffetti explained that allowing 7XX courses on a graduate program, especially if they are available for credit to students who have not yet completed a bachelor’s degree, could confuse the very difficult issue about the use of 4XX courses (not permitted) and the use of the 5XX component of a 4XX/5XX course, which will be limited to 50% of a student’s degree program beginning Fall 2005.

Rockey asked whether Veterinary Medicine would be required to submit already approved 7XX courses through the category II process before they could be used on a graduate program of study.

Dale Pehrsson (Education) noted that the description of professional courses as not meeting graduate program requirements was very hard to grasp because the coursework is both advanced and very demanding. “Rigor” does not appear to be the appropriate criterion to judge whether a 7XX course is appropriate for a graduate program of study.

Mary Strickroth (Graduate School) asked whether the fee structure affects the use of 7XX courses. Delander replied that the students who are concurrently pursuing either an undergraduate or graduate degree are considered PharmD students until completion of that degree. They then may become PhD students. He noted that the last two years of the PharmD degree do not take place on the Corvallis campus.

Francis said that some time would be needed to analyze how 700 level courses approved for the graduate level would be designated in university records. Delander expressed a sense of urgency for approval of their request, citing the effect the decision will have on current dual degree students and on the ability of the College to recruit new students.
Ciuffetti asked whether two designations could be given to the same course: 500 level for graduate studies and 700 level for use in a PharmD program. Delander opposes dual numbers because of scholarship ramifications and the blurring of lines between a professional degree program and a graduate degree. He strongly believes that the university is confused about professional degree programs. He believes that the Council does not understand what they are and what their rigor is. A 700-level course would be more demanding than a 500-level course with the same name. The approach to learning is different.

Rockey thought the conversation was constructive and recommended that whatever is approved for Pharmacy also be approved for 7XX courses in Veterinary Medicine.

Filtz noted that many PharmD courses are not appropriate for doctoral programs of study. She indicated that the College of Pharmacy would be willing to designate about 10 courses and provide them for review by the Graduate Council for use on graduate programs of study. She indicated that graduate students in the Pharmacy graduate degree program need to take some 700 level courses as foundation for their ability to function as researchers in their discipline. She also agreed that it is appropriate for Pharmacy graduate students to take courses outside their program of study.

Selker expressed appreciation for the argument that some courses that are mandatory for professional pharmacists are not necessary for pharmacy doctoral students.

Pehrsson asked how the similarities and differences in courses that are professional (but not graduate) and those that serve both purposes relate to the Council’s discussion of what constitutes a true graduate education/experience.

Filtz said that she is interested in the Council’s assessment of the 7XX courses. They are not similar to undergraduate educational experiences. At the same time, these courses do not provide necessary experiences for doctoral students who do need quite different courses. Those small, research-focused courses should be designated 5XX or 6XX and should play an important role in doctoral programs of study. She added that Pharmacy wants to provide legitimate recognition that some courses can be completed by two different groups of students—Pharm D and PhD students—and that these courses can apply to either or both Pharm D and PhD programs.

Pehrsson described the Category II process, in which a course is submitted by a department, reviewed by an academic college, reviewed by the Graduate Council, reviewed by the Curriculum Council, and finally reviewed by the director of Academic Programs. Bruce Rettig (Graduate School) suggested that, because all the 7XX courses have already been approved, the decision of approving some of them for use on a graduate program of study could be made by the Graduate Council.

Selker proposed that the Graduate Council approve the courses that successfully go through the category II proposal process for graduate level use, with no change in the number of credits. Ciuffetti asked whether the Council was discussing the use of some of these courses for PhD programs in Pharmacy and Veterinary Medicine or whether it intended to allow the courses to be used on any graduate program of study. Filtz supported Selker’s proposal that the courses should
be accepted in other programs, if approved by a graduate student’s advisory committee. Rockey agreed with this proposal with the understanding that 15 credits should be the maximum allowed. Ciuffetti noted that the proposal to allow any graduate student to use 700 level courses on a program of study is different from the original proposal submitted by the College of Pharmacy. She indicated that she had not thought through the ramifications for graduate degree programs other than the PhD in pharmacy.

The Council approved a motion that 700 level courses that successfully go through the category II proposal process be accepted as graduate level for programs of study.

III. Status report on European three-year degrees

Rettig offered two recommendations to the Council for their consideration:

(1) Postpone consideration of admissions policy changes for this year to allow informed discussion to take place by professionals who are more fully informed on the changes and their impact on U.S. graduate schools.

(2) Ask the Office of Admissions to collaborate with any departments or programs that may receive an application from a student with a three-year European bachelor’s degree.

He based these recommendations on the following premises:

(1) Current European degrees are highly diverse, just as they are in the U.S. This is why our Office of Admissions relies on detailed guidance from the national association of admission professionals to advise us on what is equivalent to a four-year U.S. bachelor’s degree.

(2) This diversity is likely to continue, requiring us to rely on updated information from the professional associations to which Admissions, the Office of International Education, and the Graduate School belong. The Council of Graduate Schools had a useful discussion, which Mary Strickroth summarized for the Council committee. The organizations to which Admissions and OIE belong (AACRAO and NAFSA) have meetings this spring that include multiple sessions on this topic.

(3) There is a lag from the time that the professional associations conclude the appropriate way to handle new credentials to the date when the professional reference literature is revised.

(4) The uncertainty about this issue and the fact that many of our peers are not revising their admission requirements from Europe just yet suggests that we should delay any action to change university policy. Recent examples of no change are found at the University of Washington at http://www.grad.washington.edu/admissions/intl/pep_definition.asp and at Stanford University at http://gradadmissions.stanford.edu/information/international.html

(5) The very tight focus on a specific course of study in many European universities means that the students will have mastered a subject thoroughly at the end of three years, but they may not have sufficient breadth to pursue a degree unless it is closely related to their area of study. For example, someone with a three-year degree in Physics from a strong European university should be well prepared for MS and possibly PhD work in physics in the U.S., but may have substantial problems crossing over into a different field of study such as a biological science without additional undergraduate preparation.

(6) The discussions in Europe suggest that many agencies and employers are not convinced that a
three-year degree is sufficient for employment. It is not unreasonable to believe that initial graduates of three-year degrees are most likely to continue for a European master’s degree.

(7) If any students do apply, our Admissions Office is prepared to partner with academic programs and departments to make exceptions while waiting for sufficient information to make complete policy changes.

Brent Steel (Liberal Arts) added that the amount of learning currently present in European degrees varies significantly from country to country. Pehrsson noted that the emergence of three-year bachelor’s degrees in Europe is related to a trend in Europe to improve the accountability of higher education and insure conformity to a minimum standard. Rettig said the he understood that the apparently narrow focus of many European higher education programs may require OSU programs to provide for additional background if a European student or OSU wishes to add breadth to their education or change areas of study.

Dan Brown asked how the changes in higher education in Europe would affect OSU degree programs with large international student populations. Rettig noted that several of the international students at OSU now come as participants in exchange programs. Some of them choose to continue for an OSU degree and some of them return later for an OSU degree. Brown agreed that exchange opportunities are useful, but that international students make up an important part of some graduate majors including his own (Electrical and Computer Engineering).

Strickroth understood that some universities in Europe would graduate students with the new three-year European degrees this year, but that parallel tracks/degrees, such as the German diplom, will remain available until the new degrees are fully implemented and widely accepted by employers.

Rosemary Garagnani (Associate Director of the Office of Admissions for Operations) said that her unit expects to have a better sense of direction after the AACRAO and NAFSA meetings this spring.

Rettig shared his perception that the commitment to these new degrees by administrators in Europe has not always been accompanied by additional funding. Therefore, making these new degrees operational may be a challenge at many universities. Selker reported that he heard much excitement and commitment to the new degrees when he was in Switzerland recently. He is convinced that many U.S. universities will be accepting these students eventually.

Strickroth said that there is resistance to the new degrees in Germany because the Germans believe their educational system, including design of degrees, is doing very well in its current form. But, they have also said that they will adopt the new degrees.

The Council decided to proceed as Rettig recommended: to defer changes in policy until additional information is available and to ask Admissions and the Graduate School to work with any department or program that receives an admission application from someone with a three-year European bachelor’s degree to determine eligibility for admission.
Appendix I to the Pharmacy Proposal:

1. University of Michigan College of Pharmacy
PhD programs of study include 15 extradepartmental and 12 intradepartmental credits. A typical PhD degree in Pharmaceutical Sciences may include 9 credits of coursework in the PharmD curriculum.

2. University of Florida College of Pharmacy
16 credits from the PharmD curriculum are allowed on the PhD program of study

3. University of Texas at Austin
No specific number of semester hours required for a PhD program. PharmD and PhD course numbering overlaps

4. University of Utah College of Pharmacy
Joint PharmD/PhD program has 20 credit hours counting towards both degree programs

5. Washington State University College of Pharmacy
A PhD degree program may include 9 credits of non-graduate coursework (out of 32 required didactic credits

6. University of Houston College of Pharmacy
Upper level undergraduate and professional courses (5000 level) may be applied to the PhD program of study upon approval of the Department Chair. No limit stipulated.

7. University of Michigan College of Pharmacy
Several PharmD courses count towards the PhD degree program

Other PharmD/PhD programs with indeterminate cross over policies
University of Maryland School of Pharmacy
UC San Francisco School of Pharmacy
University of Southern California
Appendix II: College of Pharmacy Pharm.D./Ph.D. Program

The College of Pharmacy Pharm.D./Ph.D. degree is offered to students seeking to utilize an understanding of the pharmaceutical sciences and contemporary pharmacy practice to broaden perspectives brought to investigations in biomedical research. The dual degree program fully explores patient care aspects of a professional degree, while preparing students to address critical questions that will advance scholarship in fundamental research. The ability to design and analyze foundational research that addresses pressing patient care issues is critical as we attempt to advance healthcare quality in the future.

General Requirements for the combined degree program:

- Completion of a B.S. or B.A. degree.
- Admission into the professional Pharm D program.
- Acceptance into the graduate program of one of the disciplines (pharmacology, medicinal/natural products chemistry, pharmaceutics/biopharmaceutics) in the College of Pharmacy through the OSU Graduate School.
- A cumulative 3.0 GPA in all graduate level courses and all professional courses attempted.
- Satisfactory review of performance for continued enrollment in the Pharm.D./Ph.D. program each academic year.

General Curricular guidelines:

The combined degree program is designed to facilitate sequential completion of the Pharm.D. and Ph.D. degrees. As noted below, typically students can anticipate completion of the Pharm.D. degree within 5 years and completion of the Ph.D. degree within an additional 2-4 years. The exact length of time required to complete the Ph.D. is dependent, in part, on the nature and success of research conducted. Application for admission to the Graduate School should be initiated immediately upon being accepted into the professional program.

Professional Program curriculum

P1 and P2 years (1st and 2nd year of program):

Students are enrolled in the traditional professional curriculum. Several professional didactic courses can also be used for partial fulfillment of didactic components of the graduate program of study.

Experiential courses (or waivers) required before entering the P3 year should be completed by the end of summer following the P2 year.
P3 year:

Students enroll in the traditional professional curriculum during the P3 year.

a. Before enrolling in the P3 years it is expected that the student will have completed 3 research rotations. Two options are provided for completion of the research rotations.

b. Students may complete research rotations (6 weeks, full-time) in the summers before and after the P1 year, and after the P2 year.

c. Students may complete research rotations during the academic year (10 weeks, part-time) following their P2 year. This will delay enrollment in the P3 until the following year (year 4 of the student’s overall program).

P4 year (Experiential rotations):

The professional curriculum requires five patient care clerkship rotations and two elective rotations. Typically, the Director of Advanced Experiential Education will work with students to schedule patient care rotations in Blocks 1 – 5 allowing completion of these rotations by the end of January. The student will begin research in support of their Ph.D. program following completion of block 5. Research conducted during the first 12 weeks following completion of block 5 will be accepted as meeting requirements for completion of the two required elective rotations. Students should register for two elective clerkship rotations during this period.

The student, graduate advisor and Director of Advanced Experiential Education may collectively agree to extend the time period over which a student enrolls in and completes patient care clerkship rotations. The Pharm. D. degree will be awarded upon successful completion of all patient care and research clerkship rotations.

Graduate Program Curriculum

Students pursuing the Pharm.D. / Ph.D. option must apply to the Graduate School for acceptance into the graduate program upon notification of their acceptance into the professional program. Acceptance into the dual degree Pharm.D./Ph.D. program is contingent upon acceptance into the graduate program of one of the disciplines (pharmacology, medicinal/natural products chemistry, pharmaceutics/biopharmaceutics) in the College of Pharmacy.

Research Rotations:

Students are expected to select three laboratories that are engaged in research of interest to the student and complete a research rotation in each laboratory. As noted under the description of the professional curriculum, these rotations can be completed in summers, beginning as early as the summer before beginning the professional curriculum. Alternatively, a student may choose to spend the academic year following the P2 professional year completing research rotations. This will delay enrollment in the P3 until the following year (year 4 of the student’s overall program). Regardless of the method used to complete research rotations, students are expected to select a graduate advisor and laboratory by the end of their third year in the College of Pharmacy.
 Didactic coursework:

Specific courses required for the Ph.D. degree are negotiated between the student, the graduate mentor, the College Graduate Studies committee and, when selected, the student’s Graduate Program committee based on the student’s research interests. Several courses within the professional curriculum may be accepted as partial fulfillment of didactic course requirements. (For example, the lecture sections of Foundations of Drug Action, PHAR 735, meet concurrently with Phar 590, which is required of all graduate students and would be accepted in lieu of Phar 590.) Pending University approval, a total of 15 credit hours of 700 level courses may be included in the graduate program.

Courses completed in fulfillment of graduate degree requirements may be completed at any time. It is important to note that professional program course requirements are substantial and it will likely not be reasonable to add graduate level courses to a full professional course load*. Most graduate level courses, that are not also professional courses, will be completed following completion of the professional curriculum. Students that choose to complete research rotations during the third academic year are expected to use that year to complete some graduate level courses

(*If a student has already completed physiology and biochemistry before admission to the professional program, they are strongly encouraged to pursue additional graduate level courses during the first professional year)

Graduate Committee and Graduate Examinations

Students are expected to identify a graduate advisor and laboratory by the end of their third year in the College of Pharmacy. The graduate committee should be selected in the fourth academic year and a Program committee meeting should be held before the start of the fifth academic year. Preliminary examinations should be completed within one quarter of completing didactic coursework (usually before or early in the sixth academic year).

Thesis Research and Completion of Ph.D. degree

Students are expected to commence thesis-related research immediately upon selecting a graduate advisor and laboratory. It is understood that requirements for successful completion of the professional program may severely limit the time available for a student to work on thesis-related research. While completing professional program requirements, however, the student should meet regularly with their graduate advisor, attend laboratory meetings when possible and conduct preliminary experiments. The student’s research goal, while completing the professional curriculum, should be to become current in their chosen area of research and identify a general thesis topic.

Completion of the professional degree should be followed by a full time commitment to thesis-related research on a topic developed while completing the professional degree. Students will conduct research under the direction of their graduate advisor and defend their thesis at an
appropriate time, as determined by their graduate advisor and graduate committee. It is anticipated that most students will be engaged actively in research for approximately two years following completion of their preliminary examination. The Ph.D. degree is awarded upon successful defense of the student’s thesis.

Financial Aid

Students are eligible for graduate teaching or research assistantships only during years in which they are primarily engaged in activities related to completion of their Ph.D degree. Alternative funding mechanisms may be available to assist students during the periods in which they are completing research rotations. Students will be eligible for professional student scholarships before receiving the PharmD degree.

Outcomes for a PhD degree in pharmaceutical sciences

1. Acquire a substantial body of knowledge which is at the forefront of studies in pharmacology, natural products chemistry, bio-organic chemistry, pharmaceutics, drug metabolism, or drug toxicity

Metrics: Successful completion of required and optional didactic coursework
Successful completion of oral preliminary exam

2. Conceptualise, design and implement a project for the generation of new knowledge, applications or understanding at the forefront of pharmaceutical sciences,

Metrics: Successful completion of research proposal for preliminary exam
Acceptance of research thesis topic by thesis advisory committee
Number of internal and external predoctoral grants applied for and obtained

3. Understand, apply and modify current techniques for discovery research

Metrics: Participation in seminar series, works-in-progress monthly meetings and journal clubs
Successful completion of three semesters of research rotations in pharmaceutical sciences

4. Create and interpret new knowledge, through original research, of a quality to satisfy peer review, that extends the forefront of the discipline.

Metrics: One or more first author manuscript publications or patent applications prior to graduation

5. Effectively communicate research findings in oral form

Metrics: Satisfactory yearly presentations at the annual College of Pharmacy retreat alternating oral and poster presentations every other year, reviewed by peers and faculty
Participation in monthly works-in-progress seminars within the College

5. Gain employment of choice in the field of pharmaceutical sciences

Metrics: Number of graduates employed in pharmaceutical sciences
Pharm.D. Program Prerequisites

(Required Pre-Pharmacy courses for admission into the Pharm.D. Program)

Below is the list of the pre-pharmacy courses that need to be completed prior to the beginning of fall classes in the professional program. A bachelors degree is not required for admission to the Pharm.D. program. However, students must earn a bachelors degree prior to entering their third professional year. A path to earn a B.S. degree in general science from Oregon State University has been developed in cooperation with the College of Science.

Quarter credit hours

<table>
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<tr>
<th>Course Name</th>
<th>OSU Course (Credit Hours)</th>
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<tbody>
<tr>
<td>General Chemistry/lab for science majors</td>
<td>CH 221 ,222 ,223 (15)</td>
<td>Biochemistry for science majors**</td>
<td>BB 490 ,491 ,492 (9)**</td>
</tr>
<tr>
<td>Organic Chemistry/lab for chemistry majors</td>
<td>CH 334 ,335 ,336 , 337 (12)</td>
<td>General Physics/lab for science majors</td>
<td>PH 201 ,202 ,203 (15)</td>
</tr>
<tr>
<td>Principles of Biology/lab for science majors</td>
<td>BI 211 ,212 ,213 (12)</td>
<td>Writing I</td>
<td>WR 121 (3)</td>
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<tr>
<td>Cell and Molecular Biology</td>
<td>BI 314 (4)</td>
<td>Writing II</td>
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<tr>
<td>Microbiology/lab for science majors</td>
<td>MB 302 ,303 (5)</td>
<td>Choose one: HC 199, PHL 121, WR 201, WR 214,</td>
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<tr>
<td>Calculus for health sciences or business*</td>
<td>MTH 241 or 251 (4)*</td>
<td>WR 222, WR 224, WR 241, WR 323, WR 324, WR</td>
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<tr>
<td>Principles of Statistics</td>
<td>ST 201 (3)</td>
<td>327, WR 330, WR 341 (3)</td>
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<tr>
<td>Human Physiology for science majors** or</td>
<td>Z430 ,431 ,432 (12)**</td>
<td>Speech</td>
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<td>General Economics (micro or macro)</td>
<td>ECON 201 (4)</td>
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<tr>
<td>General Psychology</td>
<td>PSY 201 (3)</td>
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<td>Current CPR &amp; First Aid cards ***</td>
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* Total of 12 hours math recommended (may include MTH 111, 112 and/or CS 101 or ST 201) plus calculus.

** Students may either choose to take a year long lecture of upper level human physiology for science majors or a year-long, upper division biochemistry course for science majors. Courses from community (2 year) colleges are not acceptable. You must complete both physiology and biochemistry prior to entering your second professional year.

*** Applicants must be certified in First Aid and CPR. Course can be taken at a community college.