



A perfusionist is a skilled, allied health professional, trained and educated specifically as a member of an open-heart, surgical team responsible for the selection, setup, and operation of a mechanical device commonly referred to as the heart-lung machine. During open heart surgery, when the patient's heart is immobilized and cannot function in a normal fashion while the operation is being performed, the patient's blood is diverted and circulated outside the body through the heart-lung machine and returned again to the patient. In effect, the machine assumes the function of both the heart and lungs.

The perfusionist is responsible for operating the machine during surgery, monitoring the altered circulatory process closely, taking appropriate corrective action when abnormal situations arise and keeping both the surgeon and anesthesiologist fully informed. In addition to the operation of the heart-lung machine during surgery, perfusionists often function in supportive roles for other medical specialties in operating mechanical devices to assist in the conservation of blood and blood products during surgery, and provide extended, long-term support of patient's circulation outside of the operating room environment.

A candidate for admission to the Clinical Perfusion Education Program at the University of Nebraska Medical Center must have successfully completed a Bachelor's Degree and the following required courses. This requires a major/minor combination or a comprehensive major as well as completion of the UNK general studies requirements and other degree requirements as set forth in the college catalog. These programs do not specify which major a student should pursue in conjunction with his/her pre-cardiovascular perfusion studies. Students should check the specific schools, to which they intend to apply to ensure that all admission requirements are fulfilled. **Gaining acceptance into a clinical perfusion program is a very competitive process. Completion of the pre-requisite courses does not automatically guarantee admission.**

Choose from one of the following options:

Take these 2 courses:

BIOL 225	Anatomy and Physiology	4
BIOL 226	Anatomy and Physiology	4

Or take these 2 courses:

BIOL 215	Human Physiology	4
PE 460	Gross Anatomy of Movement	3

Take one additional courses in biology from the following:

BIOL 103	General Biology	4
BIOL 105	Biology I	4
BIOL 106	Biology II	4
BIOL 211	Human Microbiology	4

Take all of the following:

CHEM 160	General Chemistry	4
CHEM 161	General Chemistry	4
ENG 101	Introduction to Academic Writing	3
ENG 102	Academic Writing and Research	3
PHYS 205	General Physics	5

Take one of the following:

MATH 102	College Algebra or	3
MATH 103	Plane Trigonometry or	3
MATH 123	Applied Calculus	3
MATH 115	Calculus I with Analytical Geometry	5

Recommended Electives:

HSCI 225	Introduction to Hematology	2	
BIOL 211	Human Microbiology	4	
BIOL 309	Cellular Biology	4	*Be aware of pre-requisites for upper level courses.
BIOL 325	Medical Terminology	1	
BIOL 360	Genetics	4	
BIOL 401	Principles of Immunology	4	
CHEM 250	Elementary Organic Chemistry	5	
PHYS 206	General Physics	5	

Academic Guidelines

The University of Nebraska Medical Center Clinical Perfusion Program requires a Bachelor's Degree (well - rounded in biological sciences, physical sciences and mathematics) for matriculation to the program. A cumulative GPA of at least 2.5 based on a 4.0 scale is required with preference to students possessing a GPA of higher than a 3.0. Each required course must be passed with a grade of "C" or better. A grade of "C-" will not be accepted.

Students searching for electives outside their major requirements should consider courses from the following areas: biology, chemistry, mathematics, sociology, psychology, business administration, healthcare management, and healthcare economics. See your advisor for suggestions. Students should be aware of prerequisites on all courses and plan their coursework accordingly.

Non-Academic Guidelines

There is no magic formula for acceptance into professional school. Admission is based on GPA, test scores, shadowing and medical experiences, community involvement and volunteerism, leadership qualities, the interview, the essay, and letters of recommendation. Shadowing and medical experiences are of utmost importance. Students should plan to shadow a minimum of 40 hours in their selected profession. Health Sciences offers opportunities to meet these non-academic guidelines through the Shadowing Program, the Health Science Club, and volunteer experiences. Research experience is not required, but will be looked upon favorably. Students should plan to be involved in these types of activities and experiences throughout their undergraduate career. **Three (3) clinical observations (shadowing experiences) are required for the Clinical Perfusion Program at UNMC.** Other important non-academic factors include good moral character, interpersonal skills, a deep commitment to healthcare, evidence of leadership potential and service to others.

The Application Process

Specific information regarding the application process to the respective program can be found on the program's website. For information on application requirements and the appropriate application for UNMC's Clinical Perfusion Program, visit <http://www.unmc.edu/alliedhealth/cpe.htm>

Entrance Examination Requirement: (GRE)

Scores from the basic portion of the Graduate Record Exam (GRE) must also be submitted. It is preferred that the GRE is taken no later than August of the calendar year preceding the year in which the applicant wishes to enroll in a cardiovascular perfusion program. Students register online at www.gre.org. The test consists of three sections: verbal reasoning, quantitative reasoning, and analytical writing.

Letters of Evaluation/Recommendation

Letters of evaluation will be required of applicants. Letters from a faculty member, clinical perfusionist, academic advisor, or employer would be appropriate. Information about the non-academic character of a student would be most useful as academic information is already in the application.

Interviews

Most schools screen applicants with some form of personal interview. The format of the interview may vary depending on the schools to which students are applying.

Criminal Background Checks

Prerequisite for enrollment into any health science professional program is consent for an external background check. This check includes, but is not limited to, past criminal offenses and registry information. If there is evidence of arrest for a crime(s), conviction for a crime(s), presence on an abuse registry, or other information which reasonably suggests that patient safety might be compromised, the student will be asked to provide additional information.

Citizenship/International Students

Professional schools in the health sciences vary as to whether they accept non-U.S. citizens. Some schools that do accept non-citizens require a substantial financial commitment up front. Since not all schools accept non-citizens and since the financial commitment of those that do may be substantial, students should thoroughly research and carefully consider such a decision and discuss it with their pre-health advisors early in their undergraduate years.

Websites

UNMC Clinical Perfusion Education
UNK Health Sciences

<http://www.unmc.edu/alliedhealth/cpe.htm>
www.unk.edu/healthsciences

Suggested Sequence of Key Courses

	Fall	Spring
Year 1	CHEM 160 Additional Biology Course MATH: See advisor for appropriate course placement.	CHEM 161
Year 2	BIOL 225 (recommended)	BIOL 226 (recommended)
Year 3	PHYS 205	
Year 4	Complete final major courses.	Complete final major courses.

- A minimum MATH ACT score of 22 or prior completion of College Algebra (MATH 102) or higher is a pre-requisite for CHEM 160.
- A minimum MATH ACT score of 20 or prior completion of College Algebra (MATH 102) (Grade of B+ or better) or higher is required for entry into PHYS 205.
- It is not recommended to take any of the above science courses during a summer session.
- Completion of one semester of chemistry is a pre-requisite for BIOL 225.