



NEW PROGRAM PROPOSAL FORM

Sponsoring Institution(s): Three Rivers Community College

Program Title: Pre-Medicine

Degree/Certificate: One-Year Certificate in Pre-Medicine

Options: Click here to enter text.

Delivery Site(s): All Three Rivers College locations

CIP Classification: 51.1102

*CIP code can be cross-referenced with programs offered in your region on MDHE's program inventory highered.mo.gov/ProgramInventory/search.jsp

Implementation Date: Fall 2016

Cooperative Partners: Click here to enter text.

*If this is a collaborative program, form CL must be included with this proposal

AUTHORIZATION:

Dr. Mary Lou Brown, Vice President	<i>Mary Lou Brown</i>	3/22/16
_____ Name/Title of Institutional Officer	_____ Signature	_____ Date

Dr. Mary Lou Brown	573-840-9689
_____ Person to Contact for More Information	_____ Telephone

SUMMARY OF NEED

A. Student Demand

A one-year certificate of study for students interested in health sciences (medicine, veterinary) is not available in our service area. This field of study is a discipline that requires a substantial science background. There is a need for a certificate in pre medicine for students who are interested in a health field but have not identified their specific major. This certificate is designed to meet the pre requisite needs of those who are interested in one of the Associate of Science degrees that prepares them to pursue a career in optometry, pharmacy, medicine, or veterinary medicine. This certificate was developed so that students in our service area could obtain this certificate without having to leave the area. Students can complete the certificate and then enroll in the AS in pre-Pharmacy, pre-Optometry or pre-Health Medicine through Three Rivers Community College. This would allow the student to transfer to University of Missouri – Columbia for veterinary or medicine, University of Missouri – St. Louis for optometry or University of Missouri – Kansas City for pharmacy. Students are advised to take additional required coursework at a four-year institution. They would then take the Medical College Admission Test (MCAT), Optometry Admissions Test (OAT) or Pharmacy Admissions Test (PCAT) and apply to their professional program. Students in our service area would have access to a pre-medicine certificate option in a more affordable and accessible form.

Based on discussions with students enrolled in science and advanced science classes, some expressed their concern with being prepared to meet the rigor of the Associate of Science degrees and then to smoothly transfer from Three Rivers to their professional program. This option would allow them to more easily make these transitions. The assessment of Three Rivers Community College faculty indicated there is a need for a certificate option for students interested in this field of study. The demand in the health field is expected to grow due to the increased need for care of an aging human population. In addition, there is a continued need for veterinarians, especially in care of farm animals and related fields.

The enrollment for the first five years of the program for full- and part-time students is estimated as follows:

Year 1	2016-2017	20
Year 2	2017-2018	32
Year 3	2018-2019	40
Year 4	2019-2020	48
Year 5	2020-2021	60

The size and scope of the program will initially be limited due to availability of funds for advertising and marketing of a new program. For enrollment projections, see FORM SE attached.

B. Market Demand

Needs analysis was conducted by evaluating the options currently available in Missouri for pharmacists, optometrists, physicians and veterinarians. An accredited degree in this field of study is desirable to better prepare the students to transfer their coursework to University of Missouri, sit the MCAT, OAT or PCAT and apply to their professional program. There are jobs in Missouri which requires these fields of study.

Physicians: The Occupational Outlook Handbook published by the Bureau of Labor Statistics (BLS) under the Department of Labor indicates that the job outlook for physicians is expected to increase by 14% between 2014 and 2024 which is much faster than the average for all occupations. According to BSL, this particular field is expected to grow faster than the average due to the continued expansion of healthcare-related industries. Job prospects should be good for physicians who are willing to practice in rural and low-income areas, because these areas tend to have difficulty attracting physicians. Job prospects also should be good for physicians in specialties dealing with health issues that largely affect aging baby boomers. For example, physicians specializing in cardiology and radiology will be needed because the risks for heart disease and cancer increase as people age.

The Missouri Department of Economic Development shows that in 2014 there were 3,590 medical physicians licensed in Missouri, with a mean annual salary of \$197,280. The greatest demand will be in low-income areas such as TRC's service area of southeast Missouri.

Veterinarians: The Occupational Outlook Handbook published by the Bureau of Labor Statistics (BLS) under the Department of Labor indicates that the job outlook for veterinarians is expected to increase by 9% between 2014 and 2024 which is faster than average for all occupations. According to BLS, candidates can expect very strong competition for available veterinarian positions. Those with specializations and prior work experience should have the best job opportunities. Job opportunities in farm animal care will be better, because fewer veterinarians compete to work on large animals. Also, there will be some job opportunities available in the federal government in food safety, animal health, and public health. Given the training they receive from veterinary school, veterinarians are highly qualified for nontraditional industry positions in fields such as public health, disease control, corporate sales, and population studies. With potentially fewer opportunities in companion animal care, many graduating veterinarians will likely have better job prospects in these areas.

The Missouri Department of Economic Development shows that in 2014 there were 1,170 veterinarians practicing in Missouri, with a mean annual salary of \$77,980.

Pharmacists: The Occupational Outlook Handbook published by the Bureau of Labor Statistics (BLS) under the Department of Labor indicates that the job outlook for pharmacists is expected to increase by 3% between 2014 and 2024 which is slower than the average for all occupations. The growth in jobs in pharmacy will be driven in part by the increase in the number of middle-aged and elderly segment of the population, advances in drug production and an increase in prescription insurance coverage. There is also a move towards greater involvement of pharmacists in patient care and education. Employment is expected to continue to grow in hospitals, drugstores, grocery stores, and mass retailers. According to BLS, employers in parts of the country are having difficulties finding and retaining a sufficient number of pharmacists.

The Missouri Department of Economic Development shows that there were 6,010 licensed pharmacists in Missouri in 2014 with a mean average salary of \$122,520.

Optometrists: The Occupational Outlook Handbook published by the Bureau of Labor Statistics (BLS) under the Department of Labor indicates that the job outlook for optometrists is expected to increase by 27% between 2014 and 2024 which is much faster than the average for all occupations. This particular field is expected to grow faster than the average and job prospects should be excellent according to the BLS. The growth in jobs in optometry will be driven in part by the increase in the number of eye disorders as the population ages and as the rate of diabetes increases. An increasing number of insurance plans cover some vision insurance. An increasing number of optometrists are expected to retire in the next year years opening up opportunities for new graduates. Employment is expected to continue to grow in doctor's offices, retail stores, outpatient clinics and hospitals.

The Missouri Department of Economic Development shows that there were 720 optometrists in Missouri in 2014. The mean annual salary of optometrists employed in the region was \$129,300.

Societal Needs

This certificate represents an affordable option for preparation for employment of residents of the service area. The tuition for a degree at Three Rivers Community College is relatively inexpensive and provides considerable monetary savings to students wishing to complete their education in the area prior to transferring to University of Missouri. In addition, the certificate provides citizens with the means of pursuing a degree in a field that provides a service to the community and provides a better standard of living for their families.

After evaluating the potential future growth of the medical industry and the expected future need for doctors, optometrists, pharmacists and veterinarians, it was determined there is a demand for training of future health care professionals in Missouri.

C. Methodology for Identification of Market and Societal Need

Market demand and societal information was obtained from a variety of sources. Specific sources include, but are not limited to the following:

- Internet research on labor statistics in 2016:
 - ✓ Bureau for Labor Statistics
 - ✓ Missouri Department of Economic Development
- Needs assessment conducted by Three Rivers Community College staff (2015-2016)

DUPLICATION AND COLLABORATION

There are very few certificates similar to this program offered by other community colleges throughout the state and none of the existing programs are available within our service area. Therefore there is no duplication of effort with any other community college.

This certificate in pre-Medicine is designed to be offered at the home campus and at our education centers located in Malden, Sikeston, Kennett and Dexter. The program was set up so that students can complete the one year certificate, followed by the two year Associate of Science degree at Three Rivers Community College. They would then transfer to University of Missouri to finish their undergraduate work, sit the MCAT, OAT or PCAT and apply to either the Doctor of Medicine, Pharmacy, Optometry or Veterinary degree program.



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STUDENT ENROLLMENT PROJECTIONS

Year	1	2	3	4	5
Full Time	8	12	16	20	24
Part Time	8	12	16	20	24
Total	20	32	40	48	60

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PROGRAM STRUCTURE

A. Total credits required for graduation: Certificate in Pre-Medicine 31-32 Credit hours

B. Residency requirements, if any: 15 Credit hours must be completed at Three Rivers Community College

C. General education: Total credits: 24

Courses (specific courses OR distribution area and credits):

ENGL 111 3 cr. MATH 163 3 cr. PSYC 111 or SCOM 110 3 cr.
GOVT 121 3 cr. CHEM 121 5 cr. BIOL 231 4 cr.
ENGL 112 3 cr. cr. cr.
cr. cr. cr.
cr. cr. cr.

D. Major requirements: Total credits: 7-8

BIOL 190 or BIOL 232 or BIOL 253 4-5 cr. cr. cr.
MATH 164 or MATH 223 3 cr. cr. cr.
cr. cr. cr.
cr. cr. cr.
cr. cr. cr.

E. Free elective credits: none (Sum of C, D, and E should equal A.)

F. Requirements for thesis, internship or other capstone experience: None

G. Any unique features such as interdepartmental cooperation:

The One-year certificate in Pre-Medicine is designed to meet the requirements of AS in Pre-Pharmacy, the AS inpre-Optomertry or the AS in Pre-Health Medicine at Three Rivers College.

One-Year Certificate in Pre-Medicine

Purpose: The One-Year Certificate in Pre-Medicine

Fall Semester			Hours
ENGL	111	College Writing	3
PSYC ⁽¹⁾	111	General Psychology OR	3
SCOM	110	Public Speaking	
MATH	163	College Algebra	3
BIOL	231	Anatomy and Physiology I	4
GOVT	121	National and State Government	3
TOTAL HOURS			16

Spring Semester			Hours
CHEM	121	General Chemistry I	5
ENGL	112	Advanced College Writing	3
BIOL ⁽²⁾	190	Biology for Majors OR	5
BIOL	232	Anatomy and Physiology II OR	
BIOL	253	Microbiology	4
MATH ⁽³⁾	164	Trigonometry OR	3
MATH	223	Statistics	
TOTAL HOURS			15-16

- (1) Those planning on pre-Pharmacy should take SCOM 110; those planning to take pre-Health Medicine or Pre-Optometry should take PSYC 111
- (2) Those planning on pre-Pharmacy or Pre-Health Medicine may take BIOL 190, BIOL 232 or BIOL 253; those planning to take pre-Optometry should take BIOL 190 or BIOL 253.
- (3) Those planning to take Pre-Health Science or pre-Pharmacy should take MATH 164; those taking pre-Optometry should take MATH 223.

Program Title: Certificate in Pre-Medicine

Degree Type: One Year Certificate

Contact: Dr. Mairead Ryan-Anderson

Purpose: The certificate in Pre-Medicine prepare the student to take the AS in pre-Pharmacy, the AS in pre-Optometry or the AS in pre-Health Medicine at Three Rivers College.

FIRST YEAR

Fall Semester

			Hours	
ENGL	111	College Writing	3	
BIOL	231	Anatomy and Physiology	4	
MATH	163	College Algebra	3	
PSYC *	111	General Psychology OR	3	
SCOM	110	Public Speaking	3	
GOVT	121	National and State Government	3	
TOTAL HOURS			16	

Spring Semester

			Hours	
ENGL	112	Advanced College Writing	3	
BIOL**	190	Biology for Majors OR	5	
BIOL	232	Anatomy and Physiology II OR	4	
BIOL	253	Microbiology	4	
BIOL	253	Microbiology	4	
CHEM	121	General Chemistry I	5	
MATH***	164	Trigonometry OR	2	
MATH	223	Statistics		
TOTAL HOURS			15-16	

* Those planning on pre-Pharmacy should take SCOM 110; those planning to take pre-Health Medicine or Pre-Optometry should take PSYC 111

** Those planning on pre-Pharmacy or Pre-Health Medicine may take BIOL 190, BIOL 232 or BIOL 253; those planning to take pre-Optometry should take BIOL 190 or BIOL 253.

*** Those planning to take Pre-Health Science or pre-Pharmacy should take MATH 164; those planning on pre-Optometry should take MATH 223.



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PROGRAM CHARACTERISTICS AND PERFORMANCE GOALS

Institution Name Three Rivers Community College
Program Name One-year certificate in Pre-Medicine
Date February 14, 2016

(Although all of the following guidelines may not be applicable to the proposed program, please carefully consider the elements in each area and respond as completely as possible in the format below. Quantification of performance goals should be included wherever possible.)

Student Preparation

- Any special admissions procedures or student qualifications required for this program which exceed regular university admissions, standards, e.g., ACT score, completion of core curriculum, portfolio, personal interview, etc. Please note if no special preparation will be required.
No special preparation will be required.
- Characteristics of a specific population to be served, if applicable.
No special preparation will be required. It is the policy of Three Rivers Community college to maintain and promote educational opportunity without regard to race, color, sex, age, religion, national origin, marital status, disability, veteran's status or other non-merit factors. All populations will be served.

Faculty Characteristics

- Any special requirements (degree status, training, etc.) for assignment of teaching for this degree/certificate.
Normal faculty requirements that exist for those teaching in other transfer education programs will be required. Three Rivers will select instructors based on a combination of education and work experience in the respective fields of study where adjunct faculty is used. Adjunct faculty must meet the same academic and professional requirements for teaching a given course as would be required of full-time faculty who teach the same course on campus.
- Estimated percentage of credit hours that will be assigned to full time faculty. Please use the term "full time faculty" (and not FTE) in your descriptions here.
It is anticipated that 70% of the program credit hours will be assigned to full-time faculty.
- Expectations for professional activities, special student contact, teaching/learning innovation.
The faculty will be expected to use various technologies such as Smart boards, Vernier laboratory data system, internet-based and interactive television (ITV) delivery methods.

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Enrollment Projections

- Student FTE majoring in program by the end of five years.
It is anticipated to have 60 students majoring in the program by the end of five years.
- Percent of full time and part time enrollment by the end of five years.
Full-time 70%
Part-time 30%

Student and Program Outcomes

- Number of graduates per annum at three and five years after implementation.
It is anticipated to have thirty students complete the certificate at the end of three years and forty at the end of five years.
- Special skills specific to the program.
None
- Proportion of students who will achieve licensing, certification, or registration.
None
- Performance on national and/or local assessments, e.g., percent of students scoring above the 50th percentile on normed tests; percent of students achieving minimal cut-scores on criterion-referenced tests. Include expected results on assessments of general education and on exit assessments in a particular discipline as well as the name of any nationally recognized assessments used.
None is required.
- Placement rates in related fields, in other fields, unemployed.
It is anticipated that 85% of those who complete the certificate will be employed in the field.
- Transfer rates, continuous study.
It is anticipated that 85% of students who complete the certificate will also complete the AS degree and transfer to a four year institution for further studies.

Program Accreditation

- Institutional plans for accreditation, if applicable, including accrediting agency and timeline. If there are no plans to seek specialized accreditation, please provide reasons.
There are no state-level accreditations applicable for this certificate.

Alumni and Employer Survey

- Expected satisfaction rates for alumni, including timing and method of surveys.

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The college conducts a follow-up survey of graduates 180 days after graduation via the placement office. It is estimated that 75% of the students surveyed will indicate that they are satisfied with the program and feel that they are prepared for further studies in their chosen field.

- Expected satisfaction rates for employers, including timing and method of surveys. Employers will be contacted, by phone and/or written survey, as graduates complete the program and begin implementing their new skills in the workplace. It is anticipated that 90% of the businesses employing the graduates will be satisfied with the technical skill demonstrated by the graduates.