Form NP

NEW PROGRAM PROPOSAL FORM

Sponsoring Institution(s): Maryville University

Program Title: Biochemistry

Degree/Certificate: Bachelor of Science

Options:

Delivery Site(s): Maryville University, Main Campus

CIP Classification: Biochemistry – BS Degree (CIP code) 26.0202

Implementation Date: Fall 2008

Cooperative Partners:

Expected Date of First Graduation: May 2010

AUTHORIZATION

Dr. Mary Ellen Finch – VP for Academic Affairs  June 8, 2011

Name/Title of Institutional Officer Signature Date

Dr. Candace Chambers – Assistant Dean, College of Arts and Sciences – 314.529.9208

Person to Contact for More Information Telephone

Form NP

NEW PROGRAM PROPOSAL FORM

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Missouri Department of Higher Education Proposal for New Program:

Maryville University – Biochemistry (Bachelor of Science)

1. New Program Proposal Form: See Form NP – attached

2. Need:

   A. Student Demand:

      i. Estimated enrollment each year for the first five years for full-time and part-time students (See Form SE – attached)

      ii. Will enrollment be capped in the future?

      Enrollment is expected to be fluid, so we do not foresee a need to cap enrollment in the near future. However, it would be possible that we would need to cap enrollment in introductory science courses (introductory chemistry and biology for majors and organic chemistry) until all science facilities have been renovated. For the next 3 years, we anticipate a maximum enrollment of 300 students in any given semester in general chemistry and organic chemistry courses/labs. After facilities have been renovated we should be able to serve 400 students in these sequences per semester. Currently, we can serve only 96 students in the introductory biology sequence in any given semester. After facilities renovations, we should be able to serve 210 students per semester in this sequence.

   B. Market Demand:

      According to information compiled from job profiles published by the U.S. Department of Labor, Bureau of Labor Statistics (http://www.bls.gov , accessed April 26, 2011) occupations using biochemistry training have, on average, above average projected job growth rates (2008-2018) and above average approximate median annual salaries (2008):

      Jobs that a biochemist is trained for with just a bachelors degree:
      Bench chemist (job growth 84,300 to 86,400; median salary of chemists employed by the Federal Government $101,687; starting salaries of bench chemists $39,987)
      Science technician (job growth 270,800 to 302,600)
      Biological technician (job growth 79,500 to 93,500; median salary $39,538)
      Forensic science technician (job growth 12,800 to 15,300; median salary $55,527)
      Laboratory technologist (job growth 172,400 to 193,000; median salary $53,500)

      Jobs needing post-graduate education but that may begin with a biochemistry degree:
      Physician assistant (job growth 74,800 to 103,900; median salary $81,230)
      Medical physician (job growth 661,400 to 805,500; median salary primary care $186,044; median salary specialty medicine $339,738)
      Medical scientist (job growth 109,400 to 153,600; median salary $72,590)
      Pharmacist (job growth 269,900 to 315,800; median salary $106,410)

      The following data is from the 2008 American Chemical Society Annual Salary Survey (http://portal.acs.org/portal/PublicWebSite/careers/salaries/surveys/CNBP_026817, accessed April 26, 2011).
      Median salary for chemists with a bachelor's degree: $72,600

Median salary for chemists with a master's degree:	$82,000
Median salary for chemists with a doctoral degree:	$101,000

C. Societal Need:

Our nation depends on biochemists and chemists to sustain many of the industries upon which our economy and lives depend. The paintings and coatings industry, the cosmetics and personal products industry, the pharmaceutical industry, food production and consumer labeling all employ biochemists with degrees from bachelor's to doctoral.

D. Methodology used to determine "B" and "C" above.

Information for Market Demand and Societal Need was gathered from various documents provided by the federal government (e.g., US Department of Labor Occupational Outlook) and relevant professional associations (e.g., American Chemical Society).

3. Duplication and Collaboration

If similar programs currently exist in Missouri, what makes the proposed program necessary and/or distinct from the others at public institutions, area vocational technical schools, and private career schools?

In the St. Louis region, none of our comparison institutions (Fontbonne University, Missouri Baptist University, Webster University, or Lindenwood University) offer a major in biochemistry. Washington University does not offer a biochemistry major. St. Louis University and the University of Missouri-St. Louis both offer biochemistry majors. Maryville University is very different in mission and size to both St. Louis University and the University of Missouri-St. Louis.

Does delivery of the program involve a collaborative effort with any external institution or organization?

The program will not be offered in collaboration with another institution.

4. Program Structure:
   A. See Form PS – attached
   B. See Form PS – attached
   C. See Form PS – attached
   D. See Form PS – attached
   E. See Form PS – attached
   F. See Form PS – attached
   G. See Form PS – attached

5. Financial Projections (for public institutions only): Maryville University is a private, not-for-profit institution.

6. Program Characteristics and Performance Goals: See Form PG – attached

7. Accreditation: If accreditation is not a goal for this program, provide a brief rationale for your decision.

   We do not have plans to seek accreditation. Accreditation will be through the American Chemical Society after we have attained accreditation for our chemistry major. The current timeline for the chemistry major is approximately 20 years. We currently have too many adjunct faculty teaching courses for majors, faculty are teaching loads that are too heavy, facilities are too outdated to teach necessary number of labs, we do not have required library resources to seek accreditation from the American Chemical Society at this time.

8. Institutional Characteristics: Please describe succinctly why your institution is particularly well equipped or well suited to support the proposed program.

   Maryville University is one of the oldest private institutions of higher education in the region serving approximately 3500 students. It is conveniently located within 20 minutes of downtown St. Louis where the professional opportunities for internships and reciprocal relationships with corporate and non-profit partners is significant. Within the region, Maryville is known for its strong undergraduate programs. The existing programs in chemistry and biology provide facilities and faculty expertise for the biochemistry major.

9. Any Other Relevant Information: N/A

Form SE

STUDENT ENROLLMENT PROJECTIONS

Year	1	2	3	4	5
Full Time	3	3	3	4	4
Part Time	0	0	0	0	0
Total	3	3	3	4	4

Form PS

PROGRAM STRUCTURE

A. Total credits required for graduation: ___128_____

B. Residency requirements, if any: _____none_____

C. General education: Total credits: _____39_____

Courses (specific courses OR distribution area and credits):

INTD 101	3 cr.	2 courses from Arts & Sciences	6 cr.	Philosophy	3 cr.
ENGL 101	3 cr.	HUM 101/HIST 131	3 cr.		
ENGL 104	3 cr.	ENGL/LANG/HUM/PHIL	3 cr.		
Fine Arts	3 cr.	Am Hist or Govt	3 cr.		
Lit/Lang	3 cr.	2 Social Science courses	6 cr.		

D. Major requirements: Total credits: __66-72_____

CHEM 103	4 cr.	CHEM 320	4 cr.	BIOL 118	4 cr.	MATH 151	4 cr.
CHEM 104	4 cr.	CHEM 431	3 cr.	BIOL 206	4 cr.	MATH 152	4 cr.
CHEM 203	4 cr.	CHEM 496	1-4 cr.	BIOL 353	4 cr.	PHYS 153	4 cr.
CHEM 204	4 cr.	BIOL 117	4 cr.	BIOL 298 or 476	3-4 cr.	PHYS 154	4 cr.

CHEM 031 or CHEM 432/433 or CHEM 353 3-5 cr. BIOL 351 4 cr.

E. Free elective credits: _____23-17 (depending on line D)_____ (Sum of C, D, and E should equal A.)

F. Requirements for thesis, internship or other capstone experience:

CHEM 496 is a 1-4 credit research experience (independent study) or internship

G. Any unique features such as interdepartmental cooperation: Science and math courses only.

Form PG

PROGRAM CHARACTERISTICS AND PERFORMANCE GOALS

Institution Name ___Maryville University_____

Program Name ____Biochemistry_____

Date ___April 25, 2011_____

(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 is required beyond acceptance to the university.

- Characteristics of a specific population to be served, if applicable.

  The Biochemistry major is offered for daytime students only.

Faculty Characteristics

- Any special requirements (degree status, training, etc.) for assignment of teaching for this degree/certificate.

  Terminal degree (doctoral degree) is required for all courses taught in this program. Degree may be in chemistry, biology, or biochemistry. Laboratories may be taught by faculty with a master's degree or terminal degree.

- 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.

  Full time faculty will teach approximately 60% of the credit hours for the biochemistry major.

- Expectations for professional activities, special student contact, teaching/learning innovation.

  All full time faculty members are expected to participate in an active program of professional development which includes teaching innovation, supervision of undergraduate research, new course development, and service to department/campus/community. Maryville has a well-established Finch Center for Teaching and Learning that sponsors an annual conference on the Scholarship of Teaching and Learning. Faculty members may also choose to participate in a two-year action research project where they study their own teaching and the impact on student learning. Full time faculty members are required to advise students in their degree planning and progress. Faculty members are also involved in mentoring students in their professional development.