



BOARD OF REGENTS

SUMMARY OF ITEM FOR ACTION,
INFORMATION, OR DISCUSSION

TOPIC: Frostburg State University: Bachelor of Science in Health Science

COMMITTEE: Education Policy and Student Life

DATE OF COMMITTEE MEETING: March 3, 2015

SUMMARY: The proposed Health Science major is designed to prepare students to enter health-focused careers, including the areas of medicine, dentistry, veterinary medicine, nursing, physical therapy, occupational therapy, pharmacy, physician assistant, and/or optometry. Since the career paths span a wide spectrum, the program is designed to prepare students for graduate-level studies in this broad spectrum of health-focused careers. This program will provide students with a strong background in the natural, social, and health sciences while allowing a wide choice of elective courses to suit individual career and graduate/professional school requirements.

The state of Maryland, along with the nation, projects a significant need for additional health professionals in the next decade. The Maryland Occupational Projections (2012-2022) for health care professionals indicate that 13,982 various health care professionals will be needed in Maryland by 2022. Nationally, the greatest area of need in health care is primary care and specialist physicians, particularly in rural areas. The American Association of Medical Colleges (AAMC) Center for Workforce Studies estimates there will be a shortage of 45,000 primary care physicians and 46,000 surgeons and medical specialists by 2025. The U.S. Department of Health and Human Services also estimates shortages by 2020 in all other health care professions, particularly nursing and physical therapy. This proposal to offer an interdisciplinary Bachelor of Science in Health Science is consistent with the University's mission and will continue to address the changing needs of health care in rural Appalachia.

Frostburg's proposed B.S. in Health Science is distinctive in the state of Maryland because it will be the only program to offer a Bachelor of Science degree that is specifically targeted to broadly prepare students for graduate or professional schools in the health-related fields. The program is designed to offer students interested in health-related professional or graduate schools an alternative to the traditional biology and chemistry degrees usually pursued by these students. In addition, this program offers students the opportunity to take more health-related courses than the previously mentioned traditional degree choices. Flexibility in upper level electives will increase retention and decrease time to degree.

ALTERNATIVE(S): The Regents may not approve the program or may request further information.

FISCAL IMPACT: No additional funding is necessary. The program will be supported through tuition.

CHANCELLOR'S RECOMMENDATION: That the Committee on Education Policy and Student Life recommend that the Board of Regents approve the proposal from Frostburg State University to offer the Bachelor of Science in Health Science.

COMMITTEE RECOMMENDATION:

DATE

BOARD ACTION:

DATE:

SUBMITTED BY: Joann A. Boughman

301-445-1992

jboughman@usmd.edu

**MARYLAND HIGHER EDUCATION COMMISSION
ACADEMIC PROGRAM PROPOSAL**

Proposal for:

- New Instructional Program
- Substantial Expansion/Major Modification
- Cooperative Degree Program
- Within Existing Resources

Frostburg State University
Institution Submitting Proposal

Fall 2015
Projected Implementation
Date

B.S.
Award to be Offered

Health Science
Title of Proposed Program

120100
Suggested HEGIS Code

51.1199
Suggested CIP Code

Department of Biology
Department of Proposed Program

Thomas Serfass, Ph.D.
Name of Department Head

R. Scott Fritz, Ph.D.
Contact Name

rfritz@frostburg.edu
Contact E-Mail

301.687.7020
Phone Number



2-10-15

President/Chief Executive Approval

Signature and Date

Date Endorsed/Approved by Governing Board

Date

Frostburg State University
Bachelor of Science in Health Science (B.S. IN HEALTH SCIENCE)
MHEC Program Proposal

A. Centrality to Institutional Mission Statement and Planning Priorities

Frostburg State University is a student-centered teaching and learning institution featuring experiential opportunities. The University offers students a distinctive and distinguished baccalaureate education along with a select set of applied master's and doctoral programs. Frostburg serves regional and statewide economic and workforce development, promotes cultural enrichment, civic responsibility, and sustainability, and prepares future leaders to meet the challenges of a complex and changing global society.

Frostburg is committed to its mission to provide distinctive baccalaureate education that addresses disparities and workforce shortages in rural Maryland and the surrounding Appalachian region. With the increased need for health care providers, particularly in rural communities, the University has begun to develop health science programs to address these needs. Frostburg's new RN-BSN program has received strong statewide support and has been accredited through the Commission on Collegiate Nursing Education (CCNE). Frostburg has also expanded its nursing program to a Master of Science in Nursing, with a particular emphasis on preparing nursing faculty with a focus on rural health care delivery. This proposal to offer an interdisciplinary Bachelor of Science in Health Science is consistent with the University's mission and will continue to address the changing needs of health care in rural Appalachia.

B. Adequacy of Curriculum Design and Delivery

The Health Science major is designed to prepare students to enter health-focused careers, including the areas of medicine, dentistry, veterinary medicine, nursing, physical therapy, occupational therapy, pharmacy, physician assistant, and/or optometry. Since the career paths span a wide spectrum, the program is designed to prepare students for graduate-level studies in this broad spectrum of health-focused careers.

The curriculum for the B.S. in Health Science includes coursework in biology, chemistry, physics, mathematics, psychology, sociology, and health science. The ability to communicate effectively both orally and in writing is also essential to transmit the outcomes of these processes.

Mission

The B.S. in Health Science at Frostburg State University provides students with state of the art preparation for health-related professional/graduate schools or the health care industry. This

interdisciplinary program will provide students with the fundamental concepts, knowledge, and laboratory skills necessary for the health sciences, but will also prepare students for admission to graduate and professional schools.

Vision

The interdisciplinary B.S. in Health Science at Frostburg State University will provide an alternative to traditional bachelor degrees for students interested in a health-related field and will prepare students that are qualified to enter a variety of graduate and professional programs in the health sciences. This program will provide students with a strong background in the natural, social, and health sciences while allowing a wide choice of elective courses to suit individual career and graduate/professional school requirements.

Program Objectives

Upon completion of the program, students will be able to:

- Effectively find and use resources from scientific literature;
- Effectively demonstrate skill in scientific reasoning;
- Effectively communicate in writing, speaking, and through the use of appropriate technology;
- Effectively demonstrate knowledge and competence in the natural, social, and health sciences;
- Exhibit skill in laboratory techniques and hands-on coursework requirements;
- Participate in experiential opportunities such as undergraduate research, internships, community service and study-abroad programs;
- Meet the prerequisite requirements to enter the health professions, including medicine, dentistry, veterinary medicine, nursing, physical therapy, occupational therapy, pharmacy, physician assistant, or optometry;
- Complete applications to graduate and professional schools in health-related fields; and
- Attain broad and specialized knowledge in Biology, Chemistry, Kinesiology, Psychology, and Sociology.

Requirements of Major in Health Science

Students in the B.S. in Health Science will complete Frostburg’s General Education Program and Demonstration of Technology Fluency Requirement in a prescribed manner as indicated below in **Table 1**. **Tables 2, 3, and 4** list the Required Health Science Courses, the Health and Natural Science Electives; and the Social Science Electives, respectively.

Table 1: General Education Program and Demonstration of Technology Fluency Requirement (41-44 credits)		
<i>Core Skills 9cr.</i>		
ENGL 101	Freshman Composition	3
ENGL 338/339	Technical/Scientific Writing	3

MATH 119 (or higher)	College Algebra	3
<i>Modes of Inquiry and Tech Fluency 32 cr.</i>		
Fine and Performing Arts (any)		3
The Humanities (select one other)		3
PHIL 102	Contemporary Ethical Problems	3
The Natural Sciences		
BIOL 149	General Biology I	4
CHEM 201	General Chemistry I	4
The Social Sciences		
PSYC 150	General Psychology	3
SOCI 100	Introduction to Sociology	3
The FSU Colloquia (any)		6
Identity and Difference (any)		3
<i>Demonstration of Technology Fluency</i>		
COSC 100 ¹	Introduction to Computer Science	3

¹Students may satisfy the Technology Fluency Requirement by Passing the Test of Basic Information Technology Skills (BITS Test); however, no credits will be earned.

Table 2: Health Science Required Courses (34-42 credits)		
BIOL 160	General Zoology	4
BIOL 321/322 OR BIOL 302/427	Anatomy and Physiology I&II Animal Physiology & Comparative Anatomy ²	8
CHEM 202	General Chemistry II	4
CHEM 311/312	Organic Chemistry I ³	4
CHEM 322/323	Organic Chemistry II ³	4
HLTH 101	Community Health Promotion	3
PHIL 313	Biomedical Ethics	3
PHYS 215	General Physics I	4
PHYS 216	General Physics II	4
MATH 109	Statistics	3
HSCI 101	Medical Terminology	3
HSCI 491	Health Science Capstone	1

²Veterinary and some Medical schools

³Not required for most Physical Therapy schools

Table 3: Health and Natural Science Electives (26 credits)		
BIOL 304	Microbiology	4
BIOL 310	Cell Biology	4
BIOL 350	Genetics	3

BIOL 404	Histology	4
BIOL 412	General Parasitology	4
BIOL 435	Molecular Biology	4
BIOL 440	Developmental Biology	4
BIOL 445	Immunology	4
CHEM 455	Biochemistry I	3
CHEM 457	Biochemistry Laboratory	3
CHEM 457	Biochemistry II	3
HEED 200	Nutrition	3
HEED 222	Emergency Medical Techniques In Athletic Training	3
HEED 320	Pharmacology and General Medical Conditions	3
HLTH 125	Health and Culture	3
HLTH 330	Epidemiology of Health	3
HLTH 405	Sexuality	3
PHEC 301	Applied Biomechanics	3
PHEC 341	Psychology of Physical Exercise	3
PHEC 401	Physiology of Exercise	3

Table 4: Social Science Electives (6 credits)		
PSYC 208	Introduction to Lifespan Development	3
PSYC 210	Child Development	3
PSYC 212	Adolescent and Adult Development	3
PSYC 214	Introduction to Geropsychology	3
PSYC 220	Psychology of Women	3
PSYC 250	Death and Dying	3
PSYC 317	Abnormal Psychology	3
PSYC 345	Animal Learning and Cognition	3
PSYC 386	Drugs and Human Behavior	3
PSYC 409	Human Learning and Cognition	3
PSYC 420	Physiological Psychology	3
PSYC 430	Health and Psychology	3
PSYC 489	Abnormal Child Psychology	3
SOCI 367	Sociology of Medicine	3
SOCI 466	Women, Health and Healing	3
SOCI 468	Sociology of Later Life	3

Note: See **Appendix A** for a listing of course descriptions.

Two new courses Medical Terminology (HSCI 101) and Health Science Capstone (HSCI 491) will be required for the B.S. in Health Science Program. Some professional schools list a three credit Medical Terminology course as a prerequisite and it is often taken as a preparatory course for the anatomy courses. Every academic program at FSU requires, as a component of a major, a capstone experience that allows the faculty to evaluate a student’s overall performance. Capstone experiences can take various forms; the one chosen for this proposed program is a seminar.

HSCI 101 Medical Terminology 3 cr.

Discussion of medical terminology, symbols and abbreviations, and the application of this new language in the field of health care. Focus is on medical vocabulary and being able to construct terms using word parts such as roots, suffixes, and prefixes as they relate to body structure and function. Fall and Summer. Online.

HSCI 491 Health Science Capstone 1 cr.

Demonstration of disciplinary knowledge in a seminar format of on a topic or area of health science selected by the instructor. Repeatable for maximum of 4 credits if topics are substantially different. Fall. *Prerequisites: senior standing. Health Science Capstone.*

C. Critical and Compelling Regional or Statewide Need

Maryland Ready: 2013-2017 Maryland State Plan for Postsecondary Education identifies the increasing need for skilled workers in the health care field. In addition, the State encourages the development of practices that enhance the quality, effectiveness, and adeptness of offerings provided by postsecondary institutions and support innovative strategies that can increase student access and engagement, improve retention measures, learning outcomes, and college completion rates. The new interdisciplinary program in Health Science represents an innovative strategy that increases student access to courses in their area of interest allowing the student to tailor the program to their career goals. This should improve retention rates as well as time to degree.

D. Documentation of Market Supply & Demand in the Region and State

The state of Maryland, along with the nation, projects a significant need for additional health professionals in the next decade. The Maryland Occupational Projections for health care professionals through 2022 are summarized in **Table 5**. These data indicate that 13,982 various health care professionals will be needed in Maryland by 2022.

Table 5: Maryland Occupational Projection 2012 – 2022			
Occ Code	Occupational Title	Employment Openings	Education Value

		2012	2022	Change	Replacement	Total	
29-1029	Dentists, All Other Specialists	181	180	-1	44	44	Doctoral or professional degree
29-1021	Dentists, General	3,349	3,331	-18	817	817	Doctoral or professional degree
29-1062	Family and General Practitioners	3,488	3,655	167	873	1,040	Doctoral or professional degree
29-1151	Nurse Anesthetists	542	576	34	105	139	Master's degree
29-1161	Nurse Midwives	153	164	11	30	41	Master's degree
29-1171	Nurse Practitioners	2,628	2,802	174	510	684	Master's degree
29-1064	Obstetricians and Gynecologists	382	400	18	96	114	Doctoral or professional degree
29-1122	Occupational Therapists	3,604	3,841	237	489	726	Master's degree
29-1041	Optometrists	549	565	16	159	175	Doctoral or professional degree
29-1022	Oral and Maxillofacial Surgeons	234	233	-1	57	57	Doctoral or professional degree
29-1065	Pediatricians, General	620	652	32	155	187	Doctoral or professional degree
29-1051	Pharmacists	6,634	7,080	446	1,585	2,031	Doctoral or professional degree
29-1123	Physical Therapists	5,631	6,029	398	1,386	1,784	Doctoral or professional degree
29-1071	Physician Assistants	3,120	3,316	196	561	757	Master's degree
29-1069	Physicians and Surgeons, All Other	15,221	15,547	326	3,810	4,136	Doctoral or professional degree
29-1081	Podiatrists	498	509	11	103	114	Doctoral or professional degree
29-1066	Psychiatrists	601	633	32	150	182	Doctoral or professional degree
29-1067	Surgeons	952	992	40	238	278	Doctoral or professional degree
29-1131	Veterinarians	1,506	1,698	192	484	676	Doctoral or professional degree
Total Healthcare Providers Needed by 2022 in Maryland						13,982	

Nationally, the greatest area of need in health care is primary care and specialist physicians, particularly in rural areas. According to estimates from the U.S. Department of Health and Human Services, the nation will face a shortage of approximately 20,400 primary care and specialist

physicians by 2020 and the American Association of Medical Colleges (AAMC) Center for Workforce Studies estimates there will be a shortage of 45,000 primary care physicians and 46,000 surgeons and medical specialists by 2025. The AAMC also reports that this physician shortage will be most severe on vulnerable and underserved populations—including the approximately 20 percent of Americans who live in rural or inner-city locations designated as health professional shortage areas. The U.S. Department of Health and Human Services also estimates shortages by 2020 in all other health care professions, particularly nursing and physical therapy.

Data from the Georgetown University Center for Education and the Workforce (2011) ranked health care as the fastest-growing occupational category in the nation. However, preparing more individuals to enter the health professions first requires an increase in undergraduate programs with the necessary preparatory coursework and faculty dedicated to advising students interested in pursuing a career in one of the health-related fields. This need must be met by new and expanded undergraduate programs, such as the proposed B.S. in Health Science.

Frostburg has seen a steady increase since 2008 in students majoring in the Pre-Health Profession Option of the Biology Major. In addition, over the last few years, more Chemistry majors have expressed an interest in attending Pharmacy school and more Exercise and Sport Science and Athletic Training majors have expressed an interest in attending Physical Therapy programs. Survey data collected fall 2014 from 362 undergraduate students currently attending Frostburg indicates that 262 (72 percent) are interested in pursuing a career in a health-related field and 278 (77 percent) are interested in attending graduate or professional school. Further, 144 (46 percent) would prefer to pursue a B.S. in Health Science if the program were available and 218 of 301 respondents (72 percent) stated that they would be interested in enrolling in a B.S. in Health Science at Frostburg State University as opposed to another institution.

Students who choose not to pursue a graduate or professional degree after obtaining a B.S. degree in Health Science will be able to pursue job opportunities in healthcare administration, health information technology and records, and technician positions in research and medical laboratories.

E. Reasonableness of Program Duplication

Currently there are no USM institutions that offer programs with the CIP taxonomy of 51.1199 Health/Preparatory Programs, Other. **Table 6** lists health-related programs offered at University System of Maryland Institutions. University of Maryland, Baltimore County, University of Maryland, College Park, and University of Maryland, Eastern Shore enroll students in pre-professional programs of study; however, students do not graduate with degrees in one of the pre-professional classifications. Towson University does offer a program with the same name, B.S. in Health Science, but the program is in Public Health Education and is not a preparatory program. Towson University

also offers an Allied Health Major that is designed for community college graduates with an approved associate's degree, from an accepted allied health program, to earn a bachelor's degree. The foundation of the program is a set of on-line administration and management courses.

Frostburg's proposed B.S. in Health Science is distinctive in the state of Maryland because it will be the only program to offer a Bachelor of Science degree that is specifically targeted to broadly prepare students for graduate or professional schools in the health-related fields. The program is designed to offer students interested in health-related professional or graduate schools an alternative to the traditional biology and chemistry degrees usually pursued by these students. Students will take all the rigorous basic coursework typically taken in a natural science program, but will be able to select natural, social, and health science courses to fulfill prerequisites for specific professional programs. In addition, this program offers students the opportunity to take more health-related courses than the previously mentioned traditional degree choices. Flexibility in upper level electives will increase retention and decrease time to degree.

Table 6: Health-Related Programs at University System of Maryland Institutions		
Institution	Related Program(s)	Description
Johns Hopkins	Public Health	Not a preparatory program for professional schools. Program has many graduates.
Towson University	Health Science, Allied Health	The Health Science program is focused on Public Health Education and is not a preparatory program. The Allied Health program accepts community college graduates with an approved allied health discipline to earn a Bachelor's degree.

F. Relevance to Historically Black Institutions (HBIs)

None of the Historically Black Institutions in Maryland offer a preparatory program for the healthcare fields. There are no programs comparable to the proposed B.S. in Health Science.

G. If Proposing a Distance Education Program, Please Provide Evidence of the Principles of Good Practice.

Not applicable.

H. Adequacy of Faculty Resources.

Frostburg is primarily a teaching institution. The faculty is expected to provide 24 credit hours of teaching per academic year and contribute service to the department, college, institution, community, and profession. In addition, it is expected that faculty continue to contribute to their field of expertise by participating in professional development activities appropriate to their specific discipline. The following list includes faculty from Departments of Biology, Chemistry, Kinesiology, and Psychology who teach core courses that are in the proposed B.S. in Health Science and/or advise students interested in pursuing careers in one of the health care professions.

Matthew J. Crawford, Assistant Professor of Chemistry.
B.S., Frostburg State University; Ph.D., Carnegie Mellon University.
Health Profession Advising Committee
Pre-Health Advisor and Organic Chemistry Instructor

Jennifer A. Flinn, Assistant Professor of Psychology.
B.S. and M.A., Geneva College; Ph.D., West Virginia University.
Introduction to Lifespan Development Instructor and Department Chair (Fall 2015)

R. Scott Fritz, Professor of Biology; Assistant Dean of College of Liberal Arts and Sciences.
B.S., St. Vincent College; M.S., Indiana University of Pennsylvania; Ph.D., West Virginia University.
Pre-Health Advisor and Microbiology Instructor

Heather A. Gable, Chair and Assistant Professor of Nursing.
RN, Allegany College of Maryland; M.S. and DNP, University of Maryland.
Department Chair and Medical Terminology Instructor

Karen L. Keller, Assistant Professor of Biology.
B.A. and M.S., Frostburg State University; Ph.D., University of Georgia.
Health Profession Advising Committee Chair
Pre-Health Advisor and Human Anatomy and Physiology Instructor

Melody H. Kentrus, Assistant Professor of Kinesiology.
B.S., Frostburg State University; DPT., Shenandoah University.
Pre-Health Advisor and Exercise and Sport Science Coordinator

Robert J. Larivee, Chair and Professor of Chemistry.
B.A. Rhode Island College; Ph.D., University of Delaware.
Pre-Health Advisor and Department Chair

Benjamin N. Norris, Assistant Professor of Chemistry.

B.S., Frostburg State University; Ph.D., University of Pittsburgh.
Pre-Health Advisor and Organic Chemistry Instructor

William L. Seddon, Professor of Biology.
 B.S., Pennsylvania State University; M.S., Slippery Rock University of Pennsylvania; Ph.D.,
 University of Illinois at Urbana-Champaign.
Health Professions Advising Committee
Pre-Health Advisor and Animal Physiology Instructor

Lisa L. Simpson, Chair and Assistant Professor of Kinesiology.
 B.S. and M.Ed., Frostburg State University; Ed.D., West Virginia University
Pre-Health Advisor and Department Chair

Rebekah T. Taylor, Assistant Professor of Biology.
 B.A., Lehigh University; Ph.D. Emory University.
Pre-Health Advisor and Immunology Instructor

I. Adequacy of Library Resources

The Lewis J. Ort Library provides an array of print and electronic resources that support the academic programs offered at Frostburg State University. Current library resources in the health sciences are primarily made available to students, faculty and staff in electronic format. These online resources provide access to indexes, full-text articles, statistical data, encyclopedias and reference material. The library provides access to the following article databases in the health sciences in **Table 7**:

Table 7: Databases in Health Sciences		
Online Resource	Subject Coverage	Includes Full-Text Articles
American Chemical Society Journals	Chemistry	Yes
Biological Abstracts	Life Sciences	No
CINAHL Plus	Nursing, biomedicine, alternative/complementary medicine, consumer health and 17 other allied health disciplines	Yes
Health Source: Consumer Edition	Consumer Health Information	Yes
Health Source: Nursing/Academic Edition	Nursing & Allied Health	Yes
MEDLINE (the library also provides links to PubMed)	Medicine	No (PubMed does provide access to some full text articles)

Nursing & Allied Health Source	Nursing & Allied Health	Yes
PsycArticles	Psychology	Yes
PsycINFO	Psychology	No
Web of Science	Multidisciplinary with Significant Life Sciences Coverage	No

In addition to the online resources listed in the table above, the library provides access to multidisciplinary databases such as Academic Search Complete, ArticleFirst, and JSTOR, which also include health sciences journal citations and selected full-text articles. The library subscribes to just over 6,000 full text journals, magazines, and newspapers available through the databases subscribed to by the Library with a primary focus in the health sciences.

The library subscribes to approximately 15 health sciences journals in addition to those titles made available in databases, including the *American Journal of Nursing*, *Journal of the American Medical Association*, and the *American Journal of Health Education*.

Print monographs and audiovisual items related to the health sciences in the library's collection have historically been focused in psychology and kinesiology, areas in which FSU has long-standing academic programs. The library also provides students, faculty and staff access to approximately 80,000 electronic books in many subject areas, including the health sciences.

The library's OneSearch and Research Port search systems provide access to databases and other electronic resources through the Internet to all currently registered FSU students, faculty and staff on a 24 hour/7 day basis. Materials comprising the library's collection may be searched using its online catalog, catalogUSMAI. The cooperative sharing program between USM institutions provides students, faculty, and staff with borrowing privileges for circulating print materials from any USM library. Additionally, interlibrary loan capabilities extend these privileges to libraries throughout the United States. Electronic resources may not be permitted to be shared among these libraries pursuant to the terms and conditions governing the licensing of databases and full-text content.

J. Adequacy of Physical Facilities, Infrastructure and Instructional Equipment

Frostburg State University has adequate facilities and infrastructure to support a B.S. in Health Science. All but two of the courses included in the B.S. in Health Science program are currently being taught at the University. All natural science classes are taught in Compton Science Center, which was built in 2003. It has state of the art biology, chemistry, and physics laboratories that are fully equipped as well as multiple lecture rooms with new (2014) LED projection systems. Only two new courses are included in the B.S. in Health Science program and neither course includes a laboratory component or

requires any new equipment. Laboratory and lecture room space is sufficient to accommodate additional sections of courses for the B.S. in Health Science program. Otherwise, students pursuing the proposed major will be integrated into existing course sections.

Frostburg also has adequate facilities and infrastructure to support the online Medical Terminology course that is included in the B.S. in Health Science program. The University currently uses Blackboard™ to deliver online course content as well as Blackboard Collaborate™ for live and recorded presentations. Technical assistance support including helpdesk, website support, library subject guides, databases, Blackboard™ and Blackboard Collaborate™, and new student orientation will also be utilized.

K. Adequacy of Financial Resources with Documentation

Tables 8 and 9 indicates the resources and expenditures for the proposed B.S. in Health Science program.

Table 8: Resources					
Resource Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Reallocated Funds	0	0	0	0	0
2. Tuition/Fee Revenue (c + g below)	39,910	182,224	241,408	292,610	324,538
a.1. Number of F/T Students (in-state)	5	18	23	27	31
a.2. Number of F/T Students (out-of-state)	0	2	3	4	4
b.1. Annual Tuition/Fee Rate (in-state)	7,982	7,982	7,982	7,982	7,982
b.2. Annual Tuition/Fee Rate (out-of-state)	19,274	19,274	19,274	19,274	19,274
c. Total F/T Revenue (a x b)	39,910	182,224	241,408	292,610	324,538
d.1. Number of P/T Students (in-state)	0	0	0	0	0
d.2. Number of P/T Students (out-of-state)	0	0	0	0	0
e.1. Credit Hour Rate (in-state)	352	352	352	352	352
e.2. Credit Hour Rate (out-of-state)	449	449	449	449	449

f. Annual Credit Hour Rate	18	18	18	18	18
g. Total P/T Revenue (d x e x f)	0	0	0	0	0
3. Grants, Contracts & Other External Sources	0	0	0	0	0
4. Other Sources	0	0	0	0	0
TOTAL (Add 1 – 4)	39,910	182,224	241,408	292,610	324,538

1. Reallocated Funds

None.

2. Tuition and Fee Revenue

For Year 1, it is projected that most students entering this program will be existing FSU students from other majors such as Biology, Kinesiology, and Chemistry, with only five new students anticipated due to the timeline for program approval and the lack of time for promotion and recruiting. For Year 2, we anticipate having a total of 20 new students (all full-time since this is a full-time program). For subsequent years, it is anticipated that 80% of students will be retained, with 10 new students entering each year. Enrollments should reach 35 students in Year 5.

3. Grants and Contracts

None.

4. Other Sources

Not Applicable.

Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Faculty (b + c below)	2,879	2,879	32,383	32,383	32,383
a. # FTE	.33	.33	3.42	3.42	3.42
b. Total Salary	2,667	2,667	30,003	30,003	30,003
c. Total Benefits	212	212	2,380	2,380	2,380
2. Admin. Staff (b + c below)	4,651	26,237	26,237	26,237	26,237
a. # FTE	0.75	0.75	0.75	0.75	0.75
b. Total Salary	4,310	24,310	24,310	24,310	24,310
c. Total Benefits	341	1,927	1,927	1,927	1,927
3. Support Staff (b + c below)					
a. #FTE	0	0	0	0	0
b. Total Salary	0	0	0	0	0
c. Total Benefits	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Library	0	0	0	0	0

6. New or Renovated Space	0	0	0	0	0
7. Other Expenses	0	0	0	0	0
8. TOTAL (add 1 – 7)	7,530	29,116	29,116	29,116	29,116
9. Surplus	32,380	153,108	212,292	263,494	295,422

1. Faculty (#FTE, Salary, and Benefits)

In Years 1 and 2, the only salary costs will be for adjuncts to teach two new courses (a three-credit Medical Terminology course and a one-credit Capstone course). In Year 3, one additional section of each core course (41 total credits) will likely need to be offered to meet additional student demand. Therefore, adjuncts will be needed for those courses as well.

2. Administrative Staff (#FTE, Salary, and Benefits)

There will be a need for a part-time faculty coordinator for this program. This amount is for one course reassigned time per semester (\$4,310). The cost is for an adjunct to replace this faculty member in teaching a four credit course, plus FICA benefit costs of .0793%, for a total of \$4,651.

A half-time administrative assistant will also need to be dedicated to this program beginning in Year 2, for a total of \$21,586 (\$20,000 salary and \$1,586 in benefits).

3. Support Staff (#FTE, Salary, and Benefits)

No new support staff is requested.

4. Equipment

No additional specialized equipment is needed to support this program.

5. Library

The resources currently provided by the Lewis J. Ort Library for FSU students in the Health Science disciplines are adequate for students enrolling in this new program.

6. New and/or Renovated Space

Existing space will be used for this program, with no new space requirements.

7. Other Expenses

None

L. Adequacy of Provisions for Evaluation of Program

On the institutional level, FSU's academic program review provides departments an opportunity to assess and improve the quality of program offerings. The program review process occurs every

seven years for each distinct undergraduate and graduate program and is mandated by USM’s Board of Regents.

The program review schedule serves as the foundation for assessment initiatives through its identification of priorities for the coming cycle. Halfway through the cycle, the Office of Assessment, and Institutional Research (PAIR) collects information on the status of assessment activities using a midterm review template. Programs undergoing review in any given year must submit the Program Review Self-Study, External Review Report, and Certificate to PAIR.

Assessment at the course level will be completed by both the individual academic departments as well as the faculty members teaching selected Health Science required courses. Rubrics will be developed to evaluate individual course objectives using exams, presentations, research papers, or other assignments deemed appropriate by the course instructor with approval from the Program Coordinator. The Program Coordinator will be responsible for meeting with members of the Interdisciplinary program to complete an annual assessment of student outcomes and an analysis of data. Decisions regarding curriculum changes or changes to program requirements will be made using the assessment data.

M. Consistency with the State’s Minority Student Achievement Goals

Part of the mission of Frostburg State University is “creating a campus experience that prepares students to live and work in a culturally diverse world.” The University greatly values diversity among its students, with nearly a quarter of the undergraduate population comprised of minorities drawn from throughout the State of Maryland. The actual numbers for fall 2014 are 28.9% African-American and 39.5% minority. Within the B.S. in in Biology and Chemistry programs, overall minority student enrollments have increased by 93% over the past five years as evidenced in **Table 10**.

Table 10—Enrollment by Race/Ethnicity for B.S. in Biology and Chemistry at Frostburg State University –Fall Semesters 2010-2014
Source: P409 Student Enrollment Files; Office of Institutional Research; November 7, 2014

MHEC Race	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014
Unknown	2	2	1	2	3
Black	60	74	89	110	100
Asian	5	5	8	3	6
Hispanic	3	5	10	13	19
White	119	115	117	136	150

NR Alien	4	5	6	5	6
Hawaiian			1	1	
2 or more Races		15	7	10	8
Total Students	193	221	239	280	292
Total Minority	72	104	121	142	139

A number of initiatives are in place to support academic achievement by minority students at FSU. The Diversity Center assists diverse student populations in learning how to become familiar with the university environment, as well as monitoring the academic and social adjustment of students. The Center assists students in developing their skills in building strategies for success by providing information about campus resources, support personnel, coping strategies, and cultural heritages. These goals are accomplished through offering activities, workshops and programs which help students develop an understanding of cultural differences and how to be respectful and receptive to individuals of backgrounds different from their own. In addition, the Diversity Center assesses the needs of students and works to ensure that the university environment is welcoming and inclusive.

Efforts to increase the graduation rate of minority and first-generation students include services offered through the University’s Student Support Services. The office’s Programs for Academic Support and Study (PASS) and the Writing Center both provide individual tutoring services and mentoring to help students persist and obtain a degree.

Additional efforts have recently been made to strengthen support, monitoring, and advising programs through the establishment of the Center for Academic Advising and Retention. CAAR oversees initiatives for upper class student retention and the achievement gap under the leadership of the Assistant Provost for Student Success and Retention. In addition, the Center manages the freshman orientation classes and directs students in appropriate services. CAAR will provide instructors an earlier opportunity to easily and effectively express their concerns about student performance, provide a “triage” system to direct students in need of assistance in the appropriate direction, and provide intervention for targeted at-risk students.

N. Relationship to Low Productivity Programs Identified by the Commission

Not applicable.

Appendix A: Course Descriptions

General Education Program Courses Required

ENGL 338 Technical Writing 3 cr.

Principles and practice of writing related to science, industry, and government. Effective style, organization, and mechanics of writing reports. Every semester. *Prerequisites: C or better in ENGL 101 or 111; and at least 42 credits or permission of Chair. Core Skill 2.*

ENGL 339 Scientific Writing 3 cr.

Introduction to formats, prose, and style specifications for Natural Science curricula. Focuses on language, research, critical analysis, and interdisciplinary impact of scientific discoveries. Variable. *Prerequisites: C or better in ENGL 101/111; at least 42 credits or permission from Chair. Core Skill 2.*

MATH 119 College Algebra 3 cr.

Functions and their graphs, inverse functions, solutions of equations and inequalities, polynomial and rational functions, exponential and logarithmic functions, systems of equations and matrices. Every semester. *Prerequisite: A passing score on the Mathematics Placement Test administered by the University or a grade of B or better in DVMT 100. MAY NOT BE USED TO SATISFY THE REQUIREMENTS FOR A MAJOR OR MINOR IN MATHEMATICS. MAY BE USED TO FULFILL CORE SKILL 3.*

PHIL 102 Contemporary Ethical Problems 3 cr.

Ethical issues such as abortion, euthanasia and physician-assisted suicide, the death penalty, censorship of pornography and hate speech, sex and marriage, social and economic justice, world hunger and global poverty, the environment, and the treatment of animals. Every semester. *GEP Group B.*

BIOL 149 General Biology I 4 cr.

Biological principles and concepts. The life processes, development and relationship among organisms. Three hrs. lecture, 2 hrs. lab. Every semester. *GEP Group C.*

CHEM 201 General Chemistry I 4 cr.

Atomic and molecular structure, theories of covalent and ionic bonding, chemical reactions, states of matter, gas laws, solutions, reaction rates, stoichiometry, and thermochemistry. Three hrs. lecture, one 3-hr. lab. Every semester. You cannot earn credit for both CHEM 101 and 201. *Prerequisites: C or better in CHEM 103 or placement at Chemistry Level 2 or higher and Math Level II or higher. Corequisite: MATH 102/119 or permission of instructor. GEP Group C. Note: for information on Chemistry Level placement see Department Chair.*

PSYC 150 General Psychology 3 cr.

Introduction to the methodology, theories, and applications of the science of animal and human behavior. Every semester. *GEP Group D.*

SOCI 100 Introduction to Sociology 3 cr.

Systematic introduction to the study of society. Basic concepts, methods of study, and theories about societal

structures and processes. Every semester. *GEP Group D*.

Health Science Required Courses

BIOL 160 General Zoology 4 cr.

Biology of animals and evolution of animal diversity. Study of ecological interactions among animals and their physicochemical and biological environments. Three hrs. lecture, 2 hrs. lab. Required for biology majors. Every semester. *Prerequisite: BIOL 149.*

BIOL 302 Animal Physiology 4 cr.

Mammalian physiology, with emphasis on basic physiology. Three hrs. lecture, one 2-hr. labs. Spring. *Prerequisites: BIOL 149 or BIOL 160, CHEM 202.*

BIOL 321 Anatomy and Physiology I 4 cr.

Structure and function of the human body. Includes its organization, the musculoskeletal system and the nervous system. Two hrs. lecture and two 2-hr. labs. Fall. Not open to students who have credit for former BIOL 201. *Prerequisite: BIOL 149.*

BIOL 322 Anatomy and Physiology II 4 cr.

Structure and function of the human body. Includes the endocrine, circulatory, respiratory, digestive, excretory and reproductive systems, and human development. Two hrs. lecture and two 2-hr. labs. Spring. Not open to students who have credit for former BIOL 202. *Prerequisite: BIOL 321 or permission of instructor.*

BIOL 427 Comparative Anatomy 4 cr.

Emphasis on structural relationships among fish, amphibians, reptiles, birds and mammals based on the evolution and development of organ systems. Dissection of representative chordates. Two hrs. lecture, two 2-hr labs. Not open to students who have credit for former BIOL 327. Fall. *Prerequisite: BIOL 150 or BIOL 160.*

CHEM 202 General Chemistry II 4 cr.

Acid-base concepts, equilibria, thermodynamics, electrochemistry, reaction rates, coordination compounds, and organic, nuclear, and descriptive chemistry. Three hrs. lecture, one 3-hr. lab. Every semester. You cannot earn credit for both CHEM 102 and 202. *Prerequisite: CHEM 201.*

CHEM 311 Organic Chemistry I 3 cr.

Chemistry of the compounds of carbon. Classes and nomenclature of compounds, structure, reactions, mechanisms, spectroscopy and stereochemistry. Three hrs. lecture. Every semester. Not open to students who have credit for former CHEM 301. *Prerequisites: CHEM 201 and 202 or equivalent.*
Corequisite: CHEM 312.

CHEM 312 Organic Chemistry Laboratory I 1 cr.

Introduction to techniques of experimental organic chemistry: separations, purifications, spectroscopy, mechanistic analysis. One 3-hr. lab. Every semester. Not open to students who have credit for former CHEM

301. *Prerequisite: CHEM 202 or equivalent. Corequisite: CHEM 311.*

CHEM 321 Organic Chemistry II 3 cr.

Continued study of compounds of carbon. Three hrs. lecture. Every semester. Not open to students who have credit for former CHEM 302. *Prerequisites: CHEM 311 and CHEM 312 or equivalent. Corequisite: CHEM 322.*

CHEM 322 Organic Chemistry Laboratory II 1 cr.

Application of techniques of experimental organic chemistry. Organic reactions and synthesis. One 3-hr. lab. Every semester. Not open to students who have credit for former CHEM 302. *Prerequisites: CHEM 311 and CHEM 312 or equivalent. Corequisite: CHEM 321.*

HLTH 101 Community Health Promotion 3 cr.

Introduction to the profession, theories, and practice of health promotion. Spring.

PHIL 313 Biomedical Ethics 3 cr.

Ethical issues in medicine and biomedical research. Such problem areas as the physician/patient relationship, patients' rights and professionals' obligations, human experimentation, genetics and reproductive technologies, and social justice and health care. Spring. *Recommended: 3 cr. in philosophy.*

PHYS 215 General Physics I 4 cr.

Non-calculus introduction to the theoretical and experimental foundations of physics, topics to include mechanics and heat, the fundamental concepts, principles, and laws of physics. Three hrs. lecture and 3 hrs. lab. Either an introduction to the field for prospective majors or a self-contained survey for others. Fall. *A familiarity with high school mathematics including algebra and geometry is assumed. GEP Group C.*

PHYS 216 General Physics II 4 cr.

A continuation of PHYS 215. Non-calculus introduction, topics to include electricity, magnetism, and light. The fundamental concepts, principles, and laws of physics. Three hrs. lecture and 3 hrs. lab. Spring. *Prerequisite: PHYS 215.*

HSCI 101 Medical Terminology 3 cr.

Discussion of medical terminology, symbols and abbreviations, and the application of this new language in the field of health care. Focus is on medical vocabulary and being able to construct terms using word parts such as roots, suffixes, and prefixes as they relate to body structure and function. Fall and Summer. Online.

HSCI 491 Health Science Capstone 1 cr.

Demonstration of disciplinary knowledge in a seminar format of on a topic or area of health science selected by the instructor. Repeatable for maximum of 4 credits if topics are substantially different. Fall. *Prerequisites: senior standing. Health Science Capstone.*

Health, Natural, and Social Science Electives

BIOL 304 Microbiology 4 cr.

Microorganisms, especially their form, structure, reproduction, physiology, metabolism, and identification, will be studied with emphasis on their distribution in nature, their beneficial and detrimental effects on humans, and the physical and chemical changes they make in the environment. Two hrs. lecture and two 2-hr. labs. Every semester. *Prerequisites: BIOL 149, CHEM 202.*

BIOL 310 Cell Biology 4 cr.

Dynamics of cells and their life processes. Ultrastructure, organization, thermodynamic and metabolic processes. Recommended for biology majors immediately following BIOL 150. Three hrs. lecture, one 2-hr. lab. Fall. *Prerequisites: BIOL 150, BIOL 160 or BIOL 161; CHEM 202. Corequisite: CHEM 301 or permission of instructor.*

BIOL 350 Genetics 3 cr.

Laws and molecular basis of inheritance. Genetic patterns and changes at the molecular, organismal and population levels. Three hrs. lecture. Spring. *Prerequisites: BIOL 150, 160 or 161; CHEM 202 (or CHEM 201 and permission of the instructor); MATH 109/209. Recommended: BIOL 304 and 310, CHEM 301.*

BIOL 404 Histology 4 cr.

Microscopic structure and function of the tissues and selected organs of vertebrates. Basic laboratory preparative techniques and tissue recognition. Two hrs. lecture, two 2-hr. labs. Spring, even-numbered years. *Prerequisites: BIOL 150 or BIOL 160, CHEM 201*

BIOL 412 General Parasitology 4 cr.

Principles of parasite structure, function, life cycles and host-parasite relationships. Two hrs. lecture, two 2-hr. labs. Spring, odd-numbered years. *Prerequisites: BIOL 150 or BIOL 160, CHEM 202.*

BIOL 435 Molecular Biology 4 cr.

Modern molecular concepts and techniques such as molecular cell function, DNA replication, PCR, protein synthesis, restriction enzyme analysis, DNA sequencing and DNA fingerprinting. Two hrs. lecture, two 2-hr. labs a week. Spring. *Prerequisite: BIOL 304.*

BIOL 440 Developmental Biology 4 cr.

Classical and modern study of processes producing structural and functional changes during the development of plants and animals. Three hrs. lecture, two hrs. lab. Fall, even-numbered years. *Prerequisite: BIOL 150 or BIOL 160*

BIOL 445 Immunology 4 cr.

Introduction to the complex network of cells and soluble mediators that recognize and react to substances foreign to the individual. Principles of immunity, techniques resulting from the study of this system and pathologies resulting from its malfunction. Two hrs. lecture, two 2-hr. labs. Fall, odd-numbered years. *Prerequisites: BIOL 304 and BIOL 435.*

CHEM 455 Biochemistry I 3 cr.

The chemistry and metabolism of biological compounds, biochemical thermodynamics, enzyme mechanisms,

and kinetics. Three hrs. lecture. Fall. *Prerequisites: CHEM 301 and 302; BIOL 149 or permission of the instructor.*

CHEM 456 Biochemistry Laboratory 3 cr.

Qualitative and quantitative laboratory experiments on the nature and properties of biological materials. Two three-hr. labs. Spring. *Prerequisites or corequisites: CHEM 322 and 455*

CHEM 457 Biochemistry II 3 cr.

A continuation of Biochemistry I. Metabolic processes and their conservation among widely divergent organisms. Cell processes, their interrelation and regulation. Biochemical techniques and their applications to a variety of current biological problems. Three hrs. lecture. Spring. *Prerequisite: CHEM 455 or equivalent.*

HEED 200 Nutrition 3 cr.

Principles of nutrition. The effect of food habits on family health. Nutritional requirements for different stages of human development. Application to various economic levels and social backgrounds. Every semester.

HEED 222 Emergency Medical Techniques in Athletic Training 4 cr.

An introduction to the daily management of the athletic training clinical environment. Fall.

HEED 320 Pharmacology and General Medical Conditions 3 cr.

Pathology and clinical information about various general medical conditions commonly seen in the physically active. Spring.

HLTH 125 Health and Culture 3 cr.

An examination of personal and community health issues and problems as experienced across the cultural landscape of the United States. Fall. GEP Group F.

HLTH 330 Epidemiology of Health 3 cr.

Examination of the contributions of lifestyle, genetics, environmental and social factors, and health care access to health and well-being of individuals and populations. Fall. *Prerequisite: HLTH 101.*

HLTH 405 Sexuality 3 cr.

Content and topics related to sexual and reproductive health relative to the individual and society. Every semester.

PHEC 341 Psychology of Physical Activity 3 cr.

Concepts related to psychology and physical activity. Theory-to-practice approach on how social psychological variables influence motor behavior and how physical activity affects the psychological make up of the individual. Spring. *Prerequisite: Psychology 150.*

PHEC 401 Physiology of Exercise 3 cr.

Exercise and the circulatory, respiratory, and nervous systems; efficiency of muscular work; fatigue; age, sex, and body type. May not be taken by students who have credit for PHEC 406. Every semester. *Prerequisite: BIOL 322.*

PSYC 208 Introduction to Lifespan Development 3 cr.

Survey of human development from conception to death, emphasizing biological, cognitive, and socio-emotional development. An overview for understanding how humans change across the lifespan. Less depth than PSYC 210 or PSYC 212. Variable. *Prerequisite: PSYC 150/151 with a “C” or better.*

PSYC 210 Child Development 3 cr.

Detailed review of the biological, cognitive, and socio-emotional aspects of development, from conception through childhood. More depth than PSYC 208. Every semester. *Prerequisite: PSYC 150/151 with a “C” or better.*

PSYC 212 Adolescent and Adult Development 3 cr.

Detailed review of the biological, cognitive, and socio-emotional aspects of development, from adolescence until maturity. More depth than PSYC 208. Every semester. *Prerequisite: PSYC 150/151 with a “C” or better.*

PSYC 214 Intro to Geropsychology 3 cr.

Study of older adult development (65+). Covers physical and psychological changes, developmental transition from middle adulthood, health and mental health care, cognitive change, caregiving, personality, work and adjustment to retirement, and changing relationships in older adulthood. Fall.

Prerequisite: PSYC150/151 with a “C” or better.

PSYC 220 Psychology of Women 3 cr.

Explores women’s psychological development and experience. Covers sex roles and how society’s attitudes about girls and women affect female self-concept, personality, relationships and work experience. Topics also include women of color, sexual harassment, violence against women and spirituality. Spring. *Prerequisite: PSYC 150/151 with a C or better. GEP Group F.*

PSYC 250 Death and Dying 3 cr.

Examination of the individual’s attitudes and reactions toward death and dying and one’s own mortality. Social and psychological processes affecting attitudes and reactions are explored. Variable. *Prerequisite: PSYC 150/151 with a C or better.*

PSYC 317 Abnormal Psychology 3 cr.

In-depth examination of psychological disorders. Relevant research and evidence-based treatment are discussed. Spring and Intersession. Not open to students with credit for former PSYC 417. *Prerequisite: PSYC 150/151 with a “C” or better. Recommended PSYC 208/210/212.*

PSYC 386 Drugs and Human Behavior 3 cr.

Research and theory concerning psychoactive drugs. Various drug classifications, their biological, psychological and social effects on the human organism and the environment, especially alcohol and other frequently abused drugs. Every semester. *Prerequisite: PSYC 150/151 with a C or better.*

PSYC 345 Animal Learning and Cognition 3 cr.

Exploration of the cognitive abilities of nonhuman animals. Topics include classical and operant conditioning,

memory, communication, social learning, and primate cognition. Fall. *Prerequisite: PSYC 150/151 with a C or better.*

PSYC 409 Human Learning and Cognition 3 cr.

An examination of human cognitive processes including human learning, memory and recall, attention processes, information processing, problem solving, thinking and reasoning, language acquisition and communication. Every semester. *Prerequisite: PSYC 150/151 with a C or better.*

PSYC 420 Physiological Psychology 3 cr.

Characteristics of the nervous and endocrine system and their relationship to human and animal behavior. Fall. *Prerequisites: PSYC 150/151 with a "C" or better. Recommend BIOL 109 or 149.*

PSYC 430 Health Psychology 3 cr.

Scientific study of biopsychological processes related to health states. Includes prevention and treatment of illness, mind/body connection, influence of social and physical environments on our health, and health belief models. Behavioral components of health risk factors and improvement of the health care system are addressed. Course topics biologically based with introduction to applied perspectives. Variable. *Prerequisite: PSYC 150/151 with a "C" or better.*

PSYC 489 Abnormal Child Psychology 3 cr.

In-depth examination of child/adolescent psychological disorders. Relevant research and evidence-based treatment are discussed. Fall. *Prerequisites: PSYC 208 or 210 or 212; at least 45 credits or permission of instructor.*

SOCI 367 Sociology of Medicine 3 cr.

Organizations, personnel, issues, and problems in medical care. Social influences on health and illness. Variable. Not open to students who have credit for former SOCI 467. *Prerequisite: SOCI 100 or SOCI 111.*

SOCI 466 Women, Health and Healing 3 cr.

A feminist examination and analysis of women's experiences with health and illness, including women's roles in health care systems as patients and care providers. Variable. Not open to students who have credit for former SOCI 368. *Prerequisite: SOCI 100 or SOCI 111 and junior or senior standing or permission of instructor.*

SOCI 468 Sociology of Later Life 3 cr.

The dimensions of aging, including the aging process, the implications of increasing life expectancy, and societal reactions to the aged. Variable. *Prerequisite: SOCI 100 or SOCI 111.* Also offered as SOWK 468.