



June 18, 2021

Dr. James D. Fielder, Jr., Secretary
Maryland Higher Education Commission
6 North Liberty Street, 10th Floor
Baltimore, MD 21201

Dear Secretary Fielder,

Hood College has designed a new and exciting master of science program in nutrition science that we are eager to submit to the Maryland Higher Education Commission for review. This highly interdisciplinary graduate program is fully supportive of Hood's mission and strategic goals, and is underpinned by our strong liberal arts foundation that draws upon our existing strengths in nursing, psychology, biology and the other basic sciences. The proposed program in nutrition science purposefully aligns with accreditation standards of the Accreditation Council for Education in Nutrition and Dietetics (ACEND), a credential we intend to pursue pending program approval. If awarded, ours would be the only ACEND-accredited future graduate program in nutrition and dietetics in the state of Maryland. The future education model (FEM) through ACEND is competency-based and relies less on traditional placement of students at internship sites and external preceptors. Supervised applied learning experiences are facilitated by the College's nutrition faculty and simulation activities will be used to prepare the students to be work-ready upon completion of the program. Additionally, students in the proposed nutrition science program will work alongside nursing students as they jointly use our existing high-fidelity simulation lab equipment, thus providing an enriching inter-professional experience. We believe that this program will serve an important need within our local area and across the State. Finally, the program's design is informed by priority areas identified by the American Society of Nutrition (ASN) and the Academy of Nutrition and Dietetics (AND).

Pending the Commission's concurrence, the College wishes to begin offering the master of science program in nutrition science at the beginning of the fall 2022 semester. Therefore, we formally request your review and approval of this program.

Sincerely,

Deborah D. Ricker, Ph.D.
Provost and Vice President of Academic Affairs

Enclosure

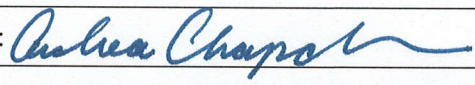


Cover Sheet for In-State Institutions
New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	
---------------------------------	--

Each action below requires a separate proposal and cover sheet.

- | | |
|---|---|
| <input checked="" type="radio"/> New Academic Program | <input type="radio"/> Substantial Change to a Degree Program |
| <input type="radio"/> New Area of Concentration | <input type="radio"/> Substantial Change to an Area of Concentration |
| <input type="radio"/> New Degree Level Approval | <input type="radio"/> Substantial Change to a Certificate Program |
| <input type="radio"/> New Stand-Alone Certificate | <input type="radio"/> Cooperative Degree Program |
| <input type="radio"/> Off Campus Program | <input type="radio"/> Offer Program at Regional Higher Education Center |

Payment <input checked="" type="radio"/> Yes	Payment <input type="radio"/> R*STARS #	Payment	Date
Submitted: <input type="radio"/> No	Type: <input checked="" type="radio"/> Check #	Amount: 850.00	Submitted:
Department Proposing Program	Department of Nursing		
Degree Level and Degree Type	M.S.		
Title of Proposed Program	Nutrition		
Total Number of Credits	32/42		
Suggested Codes	HEGIS:	CIP: 30.1901	
Program Modality	<input checked="" type="radio"/> On-campus <input type="radio"/> Distance Education (<i>fully online</i>)		
Program Resources	<input checked="" type="radio"/> Using Existing Resources <input type="radio"/> Requiring New Resources		
Projected Implementation Date	<input checked="" type="radio"/> Fall <input type="radio"/> Spring <input type="radio"/> Summer Year: 2022		
Provide Link to Most Recent Academic Catalog	URL: http://hood.smartcatalogiq.com/en/2020-2021/Catalog		
Preferred Contact for this Proposal	Name:	Judith Anglin	
	Title:	Visiting Associate Professor, Nutrition Program Director	
	Phone:	(301) 696-3759	
	Email:	anglin@hood.edu	
President/Chief Executive	Type Name:	Andrea E. Chapdelaine	
	Signature:	 Date: 6/16/21	
	Date of Approval/Endorsement by Governing Board:	06/10/2021	

Revised 1/2021



MASTER OF SCIENCE IN NUTRITION SCIENCE

February 22, 2021

A. Centrality to institutional mission statement and planning priorities:

Program Description

Hood College, founded in 1893, is located in downtown Frederick, Maryland and is approximately one hour from Washington D.C. and Baltimore. The College offers thirty-three (33) undergraduate majors, nineteen (19) masters degrees, eleven (11) post-baccalaureate certificate programs and two (2) doctoral degrees. Thirty-eight percent (38%) of the student body is from under-represented racial or ethnic populations, hailing from more than twenty-eight (28) states and twenty-one (21) countries. Over ninety percent (90%) of the faculty hold doctoral or terminal degrees. With a low student to faculty ratio, students are given high-quality, personalized attention, which fosters their academic and professional success.

For over a century, Hood College has been preparing students to make a difference in their chosen career and community. Such leadership was on full display in 2019, when Edith Howard Hogan '59, both an alumna and former trustee of the College, gifted us with a monetary donation for the sole purpose of developing a Master of Science in Nutrition Science program. Ms. Hogan received her bachelor's degree in dietetics from the College in 1959 and went on to pursue a career in the field of nutrition and dietetics. Her remarkable career and contribution to the field led to her appointment by President Reagan to serve in the USDA's Agriculture Marketing Service.

Ms. Hogan's timely support aligns with mounting evidence that shows the critical relationship between nutrition and health. The demand for nutrition professionals in various industries has significantly increased over the years. The Bureau of Labor Statistics, U.S. Department of Labor projects an eight percent (8%) job growth between 2019 – 2029¹. This growth is anticipated to be faster than the average growth for all occupations.

¹ Dietitians and Nutritionists: Occupational Outlook Handbook. (2020, September 01). Retrieved October 10, 2020, from <http://www.bls.gov/ooh/healthcare/dietitians-and-nutritionists.htm>

Nutrition-related diseases are a leading cause of disability and death in the country². These diseases include cardiovascular, cancer, obesity, and diabetes. The hefty price tag of poor diets is estimated to be 50 billion dollars (\$50B) annually³. Approximately 117 million American adults (half of our adult population) have one or more preventable chronic disease related to poor nutrition and/or physical inactivity. The cost of these diseases is not only burdensome to the individual but causes a loss of productivity in the workplace and exorbitantly high social and societal costs⁴. Globally, the trends are similar. For example, an estimated 11 million deaths and \$255 million disability-adjusted life-years cost are attributable to nutrition risk factors for each disease outcome⁵.

In response to the above trends, we are proposing a new graduate program, M.S. in Nutrition, as described below. Hood College is uniquely positioned to train generations of nutrition professionals given both the current and projected demand in the field, in conjunction with the college's resources and geographic location. Further, the proposed master's degree addresses the core mission of the College: "Through an integration of the liberal arts and the professions, Hood College provides an education that empowers students to use their hearts, minds and hands to meet personal, professional and global challenges and to lead purposeful lives of responsibility, leadership, service and civic engagement." (www.hood.edu/discover/about-college/mission-vision)

The proposed graduate nutrition program will also augment an existing partnership with Frederick County, which allows the College to operate two county-owned greenhouses at the Scott Key Center gardens to provide sustainably grown nutritious foods for people with food insecurity (e.g., senior citizens, disabled veterans, low-income families) in our community through the Frederick Food Security Network. The proposed nutrition program will provide the crucial link between farm and table to improve health outcomes by conducting nutritional status assessment, food preparation demonstrations, food sampling, meal planning, nutrition education and counselling.

Another growing partnership between the college and local hospital system, Frederick Health, will further contribute to the proposed program. As part of the college's next strategic plan (2022-2025), a significant investment in the growth of our proposed School of Health Sciences is planned, which will include the proposed nutrition program. Such growth will be bolstered through a lease

² GBD Compare. (n.d.). October 10, 2020, from <https://vizhub.healthdata.org/gbd-compare>

³ Jardim, T. V., Mozaffarian, D., Abrahams-Gessel, S., Sy, S., Lee, Y., Liu, J., Huang, Y., Rehm, C., Wilde, P., Micha, R., & Gaziano, T. A. (2019). Cardiometabolic disease costs associated with suboptimal diet in the United States: A cost analysis based on a microsimulation model. *PLoS medicine*, 16(12), e1002981. <https://doi.org/10.1371/journal.pmed.1002981>

⁴ National Center for Chronic Disease Prevention and Health Promotion. (2020, September 18). National Center for Chronic Disease GBD Compare. Retrieved November 02, 2020, from <https://vizhub.healthdata.org/gbd-compare/>

⁵ GBD 2017 Diet Collaborators (2019). Health effects of dietary risks in 195 countries, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet (London, England)*, 393(10184), 1958–1972. [https://doi.org/10.1016/S0140-6736\(19\)30041-8](https://doi.org/10.1016/S0140-6736(19)30041-8).

agreement between the college and Frederick Health, which will provide significant expansion of current space and simulation facilities. The nutrition program will also enhance Hood College's partnership with other medical, scientific, and educational institutions through a mutual exchange of skills and resources.

II. Detailed Description of the Program

Nutrition is the study of nutrients and bioactive compounds in foods and their metabolic and physiological function for disease prevention and treatment. It's understanding the relationship among diet, health, and disease. The science is inter-disciplinary and is deeply rooted in chemistry, biology, and the social sciences. Dietetics (includes clinical nutrition), food security, molecular nutrition, nutritional biochemistry, public health nutrition, immunology nutrition are some of the many areas of specialization. The American Society of Nutrition (ASN) states that "proper nutrition offers one of the most effective and least costly ways to decrease the burden of many diseases and their associated risk factors, including obesity. Nutrition research holds the key to increasing our understanding of the causes of obesity and its related comorbidities and thus holds promise to markedly influence global health and economies"⁶. Some of the priorities identified by ASN and environmental scan conducted by the Academy of Nutrition and Dietetics (AND) are: 1) the interactions between genes and nutrition; 2) chronic disease prevention and management; 3) nutrition communication; 4) research; 5) nutrition-related behavior; 6) food systems – supply, environment, and access^{6,7}. The proposed Master of Science in Nutrition has tracks that are modern, cutting-edge, and meet the priorities listed by the ASN and the Academy of Nutrition and Dietetics.

The Master of Science in Nutrition Science program will have three (3) tracks that focus on the top priorities described above:

- 1) M.S. in Nutrition Science – Dietetics Track: This option has a dietetic clerkship accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND). The future graduate (FG) program is an eligibility pathway to become a credentialed nutrition practitioner – Registered Dietitian Nutritionists (RDNs).
- 2) M.S. in Nutrition Science – General Track (NS): The option will be a traditional track for advanced studies in the field of nutrition.
- 3) M.S. in Nutrition Science - Sustainability Studies and Applied Nutrition Track (SN): This option will be a joint collaboration with the sustainability studies major at Hood College and will focus on sustainable food systems/regenerative agriculture practices and community engagement to increase access to high-quality nutritious foods, improving health outcomes, while protecting the environment.

⁶ Ohlhorst, S. D., Russell, R., Bier, D., Klurfeld, D. M., Li, Z., Mein, J. R., Milner, J., Ross, A. C., Stover, P., & Konopka, E. (2013). Nutrition research to affect food and a healthy life span. *The American journal of clinical nutrition*, 98(2), 620–625. <https://doi.org/10.3945/ajcn.113.004176>

⁷ Academy of Nutrition and Dietetics: (2018, August). Retrieved from <https://www.eatrightpro.org/-/media/eatrightpro-files/acend/rationalefutureeducationnutritiondieteticspractitioners/environmentalscan.pdf?la=en&hash=6237274AAB16C45F3A7ECC01BF32C1EC86ECB022>

The FG and NS tracks are designed for students with nutrition or other science-related degrees who either plan to pursue the RDN credential or advance their knowledge for careers in the field of nutrition. The SN track will be for students with or without prior nutrition or science related academic background. The core curriculum will include a foundational nutrition course that focuses on concepts and controversies in the field. The FG track will require 33 credits with an additional 9 credits for the dietetic clerkship for a total of 42 credits. The FG track requires full-time enrollment and can be completed in two (2) years. The SN and NS tracks will require only 32 credits, which can be completed full-time in 18 months or part-time at the student's preferred pace.

In 2012, the Commission on Dietetic Registration (CDR) passed a mandate to change the degree requirement for dietitian registration eligibility from a baccalaureate degree to a master's degree, which is effective January 1, 2024. The commission recommended to ACEND to require an ACEND-accredited graduate degree program and/or consortium that integrates both the academic coursework and supervised practice components into a seamless (1-step) program as a requirement to obtain the future for the entry-level RDN/RD credential. In preparation for that shift, the Future Education Model (FEM) was developed by ACEND to meet this mandate. Currently, ACEND is accepting applications for demonstrational programs for the fifth (5th) and final cohort of early adopters. If Hood's proposal is approved by both college governance and MHEC, the program will receive national recognition, free hands-on developmental support including training workshops and other benefits. At the time of this writing, only two states in the region have FEM programs: Pennsylvania (University of Pennsylvania, Seton Hill University, Drexel University and University of Pittsburgh) and Virginia (Virginia Polytechnic Institute & State University). Currently, Maryland, Virginia and the District of Columbia (D.C.) do not have graduate programs that lead to RDN eligibility.

The NS and SNs track will be ideal for current nutrition practitioners (RDNs) who are registered at the baccalaureate level and want to pursue an advanced degree. Both tracks can be used by students who are completing dietetic internships in programs that are either stand-alone (unaffiliated with academic institutions) or do not result in a graduate degree upon completion. The NS and SN tracks are opportunities for articulation agreements with those programs.

The proposed nutrition program is designed to use existing resources (e.g. simulation lab and Frederick Food Security Network), courses, and faculty at the College. Courses from Environmental Science and Policy and Sustainability Studies will be included in the curriculum. The program will establish affiliation agreements with surrounding hospitals, counties, state, federal and other organizations. Although the program is non-thesis, students will have the option to work with faculty to conduct original research for presentation at professional meetings and publication in peer-reviewed journals.

Students will gain advanced knowledge in the following areas:

- Nutrient metabolism
- Nutrition education and motivational counselling
- Nutrition communication – mass and social media
- Sustainability farming – regenerative agriculture
- Food systems, access, and security
- Leadership and management
- Clinical nutrition
- Research – clinical and community-based participatory
- Health promotion
- Community (public health) nutrition
- Global health, diversity, equity and inclusion in health care

A list of the required (core) courses for each track is provided below in Table 1:

Table 1: Required Courses for Tracks – FG, SN, and NS

Course number	Core Courses	Credit	Tracks		
			FG	NS	SN
NUTR 500	Sustainable Food Systems and Food Security	3	x		x
NUTR 501	Advanced Medical Nutrition Therapy	3	x		
NUTR 502	Nutritional Status Assess & Motivational Counselling	3	x		
NUTR 503	Pathophysiology & Pharmacology	3	x		
NUTR 504	Advanced Nutritional Biochemistry Seminar	2	x		
NUTR 505	Leadership, Management, and Advocacy Seminar	2	x	x	x
NUTR 506	Global Health and Nutrition	3	x	x	x
NUTR 507	Dietetics Clerkship	3	x		
NUTR 509	Program Planning, Management, and Evaluation	3	x	x	x
NUTR 511	Nutrition Concepts and Controversies	3			x
NUTR 512	Nutritional Genomics & Microbiome	3	x	x	
NUTR 530	Health Communication	3	x		
NUTR 579	Non-Thesis Research	3	x		
NUTR 596	Nutrition Independent Study	3		x	x
MATH 500/ENV 505/BIFX 503	Research Method/Biostatistics/Statistics for Bioinformatics	3	x	x	x
Total Core Credits			42	17	20

A list of the elective courses for each track is provided below in Table 2:

Table 2: Elective Courses for Tracks – FG, SN, and NS

Course number	Electives Courses	Credit	Tracks		
			FG	NS	SN
NUTR 500	Sustainable Food Systems and Food Security			x	
NUTR 503	Pathophysiology & Pharmacology	3		x	
NUTR 504	Advanced Nutritional Biochemistry Seminar	2		x	
NUTR 556	Healthy Aging	3		x	
NUTR 530	Health Communication	3		x	x
NUTR 599	Special Topics in Nutrition	3		x	x
ENV 501	Introduction to Environmental Biology	3		x	x
ENV 502	Principles of Ecology	3			x
ENV 503	Pollution Biology	3			x
SUS 410/ NUTR 510	Bioengineering for Sustainability	3		x	x
SUS 415/NUTR 515	Urban Agriculture	3		x	x
BMS 512	Biochemistry of Intermediary Metabolism			x	
Total Required Electives Credits				12	15

III. Descriptions of Courses

New Courses:

NUTR 500 Sustainable Food Systems and Food Security – 3 credits. Examination of food security, food systems, and nutrition in relation to sustainable farming and social justice with the interrelationship among financial markets, agri-business industries, international trade, public health, and climate change. Topics will include community-based strategies to address food system, social change, and health equity; and the role of university-community partnerships to increase food access to nutritious food.

NUTR 501 Advanced Medical Nutrition Therapy – 3 credits. *Prerequisites: NUTR 503 Pathophysiology and Pharmacology; NUTR 504 Nutritional Biochemistry Seminar.*

Advanced therapies and evidence based practice incorporating pathology, biochemistry, and drug therapy in prevention and treatment of disease specializing in pediatric nutrition, obesity, cardiovascular disease, diabetes, cancer, renal disease, and gastrointestinal diseases. Initiation and management of enteral and parenteral nutrition therapy including access, metabolic and mechanical complications. Only students enrolled in the ACEND accredited track may enroll.

NUTR 502 Nutritional Status Assess & Motivational Counselling - 2 credits. *Prerequisites: NUTR 503 Pathophysiology and Pharmacology; NUTR 504 Nutritional Biochemistry Seminar.*

Comprehensive approaches for conducting nutrition assessment of individuals and populations throughout the lifecycle and conducting physical examination and strength assessment for nutrition diagnoses. The course includes laboratory experiences for learning and applying assessment and physical examination techniques. Only students enrolled in the ACEND accredited track may enroll or with instructor's consent.

NUTR 503 Pathophysiology & Pharmacology - 3 credits. Application of concepts of physiologic response and manifestations of alterations in normal body functioning across the lifespan and drug-nutrient interaction that provides the foundation for the clinical decision-making and management of care. Pharmacokinetics and pharmacodynamics of drugs and herbal supplements frequently used to treat diet-related chronic diseases will be discussed.

NUTR 504 Advanced Nutritional Biochemistry Seminar - 2 credit. Molecular, biochemical and metabolic characteristics of nutrients and bioactive compounds in relation to enzyme kinetics, bioenergetics, the metabolic pathways, and the regulation of metabolism in different physiologic states. Students will select, and discussing recent published research and to exhibit advanced understanding of human metabolism.

NUTR 505 Leadership, Management, and Advocacy Seminar - 2 credit. Exploration of theories of leadership, management, and organization behavior and impact of social, political, and economic factors affecting health care. The role of nutrition professionals as leaders and advocates in shaping policies will be examined.

NUTR 506 Global Health and Nutrition - 3 credits. A global perspective of public health and nutrition concerns in various nations, assessment of nutritional status of diverse populations, international health and nutrition organizations, policies, and interventions. Understanding the roles of dietitians, nutritionists, and others in creating and implementing international public health and nutrition policies and interventions. The course includes a study abroad option.

NUTR 507 Dietetics Clerkship - 3 credits. *Prerequisites: NUTR 502 Nutritional Status Assess & Motivational Counselling; NUTR 501 Advanced Medical Nutrition Therapy.* Competency-based training in areas of clinical, public health/community, and management. Students will satisfy the supervised practice for Registered Dietitian Nutritionist (RDN) credential. Only students enrolled in the ACEND accredited track may enroll. A total of 9 credits are required as partial eligibility for CDR Verification Statement.

NUTR 509 Program Planning, Management, Evaluation - 3 credits. Identification of population-based needs for nutrition intervention. Students will develop of programs to meet those needs and evaluate the effectiveness of the interventions using research methods, epidemiology, biostatistics, proposal writing, budget planning, project management, and program evaluation.

NUTR 511 Nutrition Concepts and Controversies - 4 credits. Understanding chemistry and biochemistry of nutrients, bioactive compounds and their role in prevention and treatment of diseases and how these concepts relate to current nutrition topics being discussed on social and mass media.

NUTR 512 Nutritional Genomics & Microbiome – 3 credits. *Prerequisite: NUTR 504 Advanced Nutritional Biochemistry Seminar.* Provides the foundation in genetics/genomics and explore the role of nutritional genomics and epigenetics in the prevention and treatment of chronic disease for possibly evidence-based precision medicine. The interrelationships of biochemistry, physiology, microbiome, genetics, and nutrition will be used for nutritional status assessment.

NUTR 530 Health Communication – 3 credits. Examine the use of mass and social media in disseminating health and nutrition information to target populations that are culturally and ethnically appropriate and effective. Students will be required to develop a media campaign to address a health/nutrition issue.

NUTR 556 Healthy Aging - 3 credits. This course focuses on theoretical perspectives on aging, diet, cross-cultural, psychological, physical activity, sociological, economic and political factors impacting aging. Living conditions, access to healthcare, food, and the role of health care professionals will be examined.

NUTR 579 Non-Thesis Research - 3 credits. *Prerequisite: ENV 505 Biostatistics/BIFX 503 Statistics for Bioinformatics/MATH 500 Research Methods.* Explore a nutrition related topic, problem, or issue, by designing, and implementing an investigation to address a research question under the guidance of an academic adviser. Students will be required to submit a scholarly written report and present the research findings at a conference or professional meeting.

NUTR 596 Nutrition Independent Study 1 - 3 credits. A practicum/field experience in a professional environment. 1 credit is equal to 50 hours of practicum hours, 2 credits is equal to 100 hours of practicum and 3 credits is equal to 150 hours of practicum experience.

NUTR 599 Special Topics in Nutrition – 3 credits. Investigating Issues, trends and research related to current concerns within selected areas of food and nutrition by reviewing current literature and evidence-based protocol.

Existing Courses

ENV 501 Introduction to Environmental Biology - 3 credits. Introduces principles of environmental biology with an in-depth analysis of biological and social variables associated with environmental issues. Energy, natural resource use, population dynamics and technological developments are examined in the context of ecological systems. Emphasis is on global climate change, and its effects are related to the concepts in environmental biology.

ENV 502 Principles of Ecology - 3 credits. Analyzes interactions between organisms and the environment. A quantitative approach will be used to examine population dynamics, community interactions, and ecosystem processes. The application of modern ecological theory to current environmental problems is emphasized including the observed and anticipated ecological impacts of global climate change.

ENV 503 Pollution Biology - 3 credits. *Prerequisite: Completion of or concurrent enrollment in ENV 501 or permission of instructor.* Examines sources, fates and biological effects of environmental pollutants. Topics covered include: air, water and soil pollution; techniques for monitoring and evaluating pollution effects; and pollution control technologies. Factors leading to global climate change will be examined in depth. The social, economic, and political issues surrounding pollution problems are all examined.

ENV 505 Biostatistics – 3 credits. Introduces statistical methods used in biological research. Topics include sampling methods, frequency distributions, descriptive statistics, hypothesis testing, probability, and both parametric and non-parametric tests. A statistical software package is introduced in laboratory exercises. Statistical problems involving global climate change are used throughout the semester.

MATH 500 Research Method – 3 credits. Basic statistical methods as they apply to education and other fields. Topics include frequency distributions and their representations, measures of central tendency and dispersion, elementary probability, statistical sampling theory, testing hypotheses, non-parametric methods, linear regression, correlation, and analysis of variance.

BIFX 503 Statistics for Bioinformatics – 3 credits. This course will focus on the statistical concepts that are used in biology and medicine to analyze and validate data. Topics will include probability, hypothesis testing, tests for variables (e.g. chi-square, Fisher's test), t-test, linear and multivariate regression, covariance and Bayesian statistic.

SUS 410/NUTR 510 Bioengineering for Sustainability - 3 credits. This course will provide an introduction to the use of enzymatic and microbial reactions in the production of desirable foods, beverages, biofuels and other bio-products.

SUS 415/NUTR 515 Urban Agriculture - 3 credits. This course provides a solid foundation in sustainable urban agriculture and the community building process. Students will gain hands-on experience working with organizations within the Frederick Food Security Network who have, or will be installing, an urban garden.

BMS 512 - Biochemistry of Intermediary Metabolism - 3 credits. *Prerequisite: Two semesters of organic chemistry.* A study of the generation and storage of metabolic energy and of the structure, biosynthesis and function of nucleic acids.

IV. Expected Student Learning Outcomes

Dietetic Track (FG)

Upon completion of the program concentration, students who achieve a Master of Science in Nutrition and a verification statement for eligibility to sit for the national registration exam for the RDN credential will be able to:

1. Apply foundational sciences to food and nutrition knowledge to meet the needs of individuals, groups, and organizations.
2. Demonstrate leadership, business and management principles to guide practice and achieve operational goals.
3. Integrate evidence-informed practice, research principles and critical thinking into practice.
4. Apply and integrate client/patient-centered principles and competent nutrition and dietetics practice to ensure positive outcomes.
5. Demonstrate professional behaviors and effective communication in all nutrition and dietetics interactions.
6. Apply food systems principles and management skills to ensure safe and efficient delivery of food and water.
7. Design community nutrition projects by applying community and population nutrition health theories.

General Nutrition Science Track (NS)

Upon completion of the program concentration, students who achieve a Master of Science in Nutrition:

1. Demonstrate understanding of anatomy, physiology, biochemistry, and social sciences in relation to food and nutrition.
2. Apply knowledge of pathophysiology and nutritional biochemistry to physiology, health and disease.
3. Understand environmental, molecular factors (e.g. genes, proteins, metabolites) and food in the development and management of disease.
4. Gain a foundational knowledge on public and global health issues and nutritional needs.
5. Apply knowledge of social, psychological and environmental aspects of eating and food.
6. Use scientific methods and ethical research practices when reviewing, evaluating and conducting research.
7. Demonstrate effective leadership, communication, collaboration and advocacy skills

Sustainability Studies and Applied Nutrition Track (SN)

Upon completion of the program concentration, students who achieve a Master of Science in Nutrition with an emphasis in sustainability studies will be able to:

1. Apply and demonstrate an understanding of agricultural practices and processes.
2. Apply food systems principles and management skills to ensure safe and efficient delivery of food and water.
3. Utilize program planning steps to develop, implement, monitor and evaluate community and population programs.
4. Engage in legislative and regulatory activities that address community, population and global nutrition health and nutrition policy.
5. Apply knowledge of social, psychological and environmental aspects of eating and food.
6. Use effective leadership, communication, collaboration and advocacy skills.
7. Gains a foundational knowledge of public and global health issues and nutritional needs.

V. Program Funding and Institutional Commitment

A distinguished Hood College alumna donated the start-up funds of \$500,000 for the proposed nutrition program. The proposed nutrition program is part of the Hood College expansion plan of developing a School of Health Sciences, which will include nursing, public health, counseling and other related programs. Thus, the College is committed to providing ongoing administrative, financial, and technical support. The program includes innovative courses that are designed to meet current and future industry trends, which will place it prominently in the new school.

In 2018, the College conducted a marketing analysis via an external reviewer to determine the feasibility of a nutrition program. Based on its favorable findings, the College hired a visiting professor of nutrition in 2020 to develop the program, namely Judith Anglin, Ph.D., RDN, LD, FAND., who has a Ph.D. in Nutritional Science with an emphasis in experimental (biochemistry) nutrition from Howard University

B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan:

I. Regional & Statewide Needs

Modern nutrition is relatively young and the first nutrient was only identified and isolated in 1926, less than a hundred years ago. Since then, most of the focus has been on nutrient deficiencies. Only in 1980 did the Dietary Recommendations include diet-related chronic diseases. Research on the role of nutrition and chronic diseases has rapidly increased since 2000, providing conclusive evidence of their relationship. Currently, the country is grappling with the double-burden of nutrient deficiencies and energy intake with the rapid rise of chronic diseases including obesity⁸.

Maryland's Center for Chronic Disease Prevention reported that seventy-five percent (75%) of the state's health care cost is due to chronic diseases. These diseases include diet-related conditions such as cardiovascular, diabetes, and stroke. The Center also stated that eighty percent (80%) of these conditions are preventable with good nutrition and adequate physical activity. The rate of obesity in the state of Maryland is similar to the national rate⁹ and The Centers of Disease Control and Prevention (CDC) reported that approximately one-third (1/3)

⁸ Mozaffarian, D., Rosenberg, I., & Uauy, R. (2018). History of modern nutrition science-implications for current research, dietary guidelines, and food policy. *s. BMJ (Clinical research ed.)*, 361, k2392. <https://doi.org/10.1136/bmj.k2392>

⁹ Center for Chronic Disease Prevention and Control. (n.d.). Retrieved October 16, 2020, from https://phpa.health.maryland.gov/ccdpc/Pages/ccdpc_home.aspx

of the adult population is obese¹⁰. Obesity is a debilitating disease that significantly increases the risk for chronic diseases. It should be noted that close to fifty percent (50%) of the obese adults in the state of Maryland have hypertension and/or elevated cholesterol levels and almost one in four have diabetes. A deeper dive into the data reveal disproportionately higher rates of the above trends among minority groups as follows: 39.9% of non-Hispanic blacks and 33.8% of Hispanics compared to non-Hispanic white adults 29.9%⁷.

These findings are supported by the poor diet quality of the state. Few Marylanders met the daily intake recommendations for vegetables and fruits, only nine percent (9%) and fourteen percent (14%), respectively, met the intake guidelines¹¹. The rate of childhood obesity in the state Maryland is approximately thirty percent (30%)¹². This statistic is particularly alarming as there is an increased risk of developing chronic diseases and earlier onset of such diseases in adulthood. The health status in other parts of the region is similar to that of Maryland with West Virginia having one of the highest obesity rates in the country at approximately 40% (Figure 1).

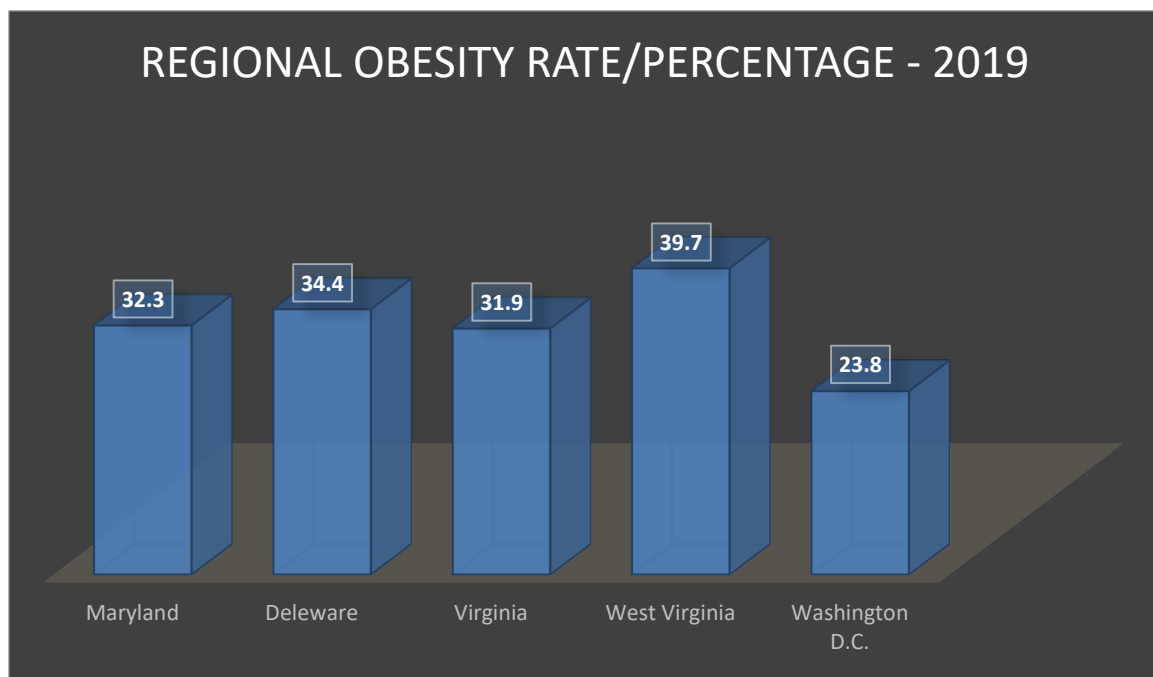


Figure 1: Regional Obesity Rate/Percentage - 2019 CDC

¹⁰ <https://www.cdc.gov/obesity/index.html> Overweight & Obesity. (2020, October 29). Retrieved October 16, 2020, from <https://www.cdc.gov/obesity/index.html>

¹¹ Maryland Action Guide - Centers for Disease Control and ... (n.d.). Retrieved November 3, 2020, from https://www.cdc.gov/nutrition/data-statistics/pdfs/Maryland_StateActionGuide_Sept2018_508.pdf

¹² National Center for Chronic Disease Prevention and Health Promotion. (2020, September 18). Retrieved November 02, 2020, from <https://www.cdc.gov/chronicdisease/index.htm>

The projected growth of jobs in nutrition fields (8%) is faster than the average growth for the period 2019 – 2029¹³. In addition to scientific evidence driving the demand for nutrition professionals, the care of an aging population to have a high quality of life is also a contributing factor. It should be emphasized that new opportunities are emerging in health coaching, sustainable food systems, wellness, and precision medicine. U.S. News ranked dietitians and nutritionists in the top thirty (30) best jobs in health care¹⁴.

Additional nutrition programs and professionals are critical in the prevention and management of diet-related diseases. Thus, the proposed nutrition program will be training diverse students to be on the forefront of these challenges and to address the complexities of diet, genetics, microbiome, metabolic pathways, food access, development of public health policies and programs to improve health outcomes and improve quality of life.

II. Critical and Compelling Need as Identified in the State Plan

According to the 2017-2021 Maryland State Plan for Postsecondary Education, our proposed nutrition program supports the following:

Strategy 8: Develop new partnerships between colleges and businesses to support workforce development and improve workforce readiness.

The proposed program will create a consistent pipeline of talented and diverse graduates that will be work-ready to meet the challenges of a dynamic and evolving science and health care. In partnership with local, state, and federal agencies, business and non-profit organizations, the program will play a critical in improving health care access and health outcomes in the region.

Gap Analysis: The partnership will form a continuous flow of information between the industry and the institution. The industry will provide information on skills and knowledge needed and the program will train students accordingly. This will not be a one-sided flow, as the program will train advanced students and generate new findings that may be used to drive the field.

Preferred Partnerships: The program will develop partnership with local organizations such as the Frederick Food Security Network, farmers' markets, and food banks that will increase access to high quality nutritious food and improve community health. Nutrition counselling and education will be provided that is often not readily available to vulnerable communities. This will also, open employment opportunities for our program graduates.

¹³ Dietitians and Nutritionists: Occupational Outlook Handbook. (2020, September 01). Retrieved October 10, 2020, from <http://www.bls.gov/ooh/healthcare/dietitians-and-nutritionists.htm>

¹⁴ Dietitian and Nutritionist Ranks Among Best Jobs of 2020. (n.d.). Retrieved October 18, 2020, from <https://money.usnews.com/careers/best-jobs/dietitian-and-nutritionist>

Business-driven Credentials: The program can be readily adopted to offer business-driven credentials as a Master Gardeners and Sustainable Food Systems certified to increase employability of program graduates. Also, the program will train Registered Dietitian Nutritionist (RDN) credential eligible graduates.

Support Graduate Education: The nutrition program is being offered at the graduate level. It supports opportunities for new careers and advancement. Effective January 2024, the education requirement for RDN registration will be a graduate degree. The FG program is a seamless one-step process that includes didactic and experiential (supervised practice) learning. This will significantly lower the cost of education and time of study.

Strategy 4: Continue to ensure equal educational opportunities for all Marylanders by supporting all postsecondary institutions.

“Student success will not be success for all if there is no consideration for equity. Every student, regardless of race, disability, ethnicity, gender, or sexual identity, is entitled to equal educational opportunities under State and Federal law. Equal opportunity for all students not only is essential to compliance with Constitutional and civil rights laws, but it also is foundational to the State Plan for Higher Education and to the values of the Commission and each postsecondary institution in the State. A wide range of innovative strategies must be pursued by all partners in postsecondary education in Maryland to assure equal opportunities to all Marylanders.¹⁵” This reflects Hood College’s core value and commitment to diversity, equity, and inclusion, which supports one of the highest percentages (38%) of college students from under-represented racial minorities in the state.

Collaboration between Historically Black Colleges and Universities: The program will reserve 20% of its available spots for students who are attending or attended Historically Black Colleges and Universities (HBCU) and Minority Serving Institutions (MSI) and who have met the program’s admission requirements. If the proposed program is approved, articulation agreements will be signed with HBCUs in Maryland.

C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State:

Nutrition is a vital component of health and an effective tool in disease prevention. Nutrition professionals are trained experts, who lead in this crucial area¹⁶. Research has shown that health outcomes improve with nutrition intervention. These improvements include shorter hospitalizations and reducing thirty (30) day readmission rates. It is estimated that one (1) in

¹⁵ Maryland Higher Education Commission - Maryland State Plan for Postsecondary Education.

mhec.maryland.gov/About/Documents/2017.2021%20Maryland%20State%20Plan%20for%20Higher%20Education.pdf.

¹⁶ Teaching Nutrition and Physical Activity in Medical School ... (2014, June.). Retrieved October 18, 2020, from https://bipartisanpolicy.org/wp-content/uploads/2019/03/Med_Ed_Report.pdf

three (3) hospitalized patients is malnourished which is a dangerous risk factor for healing and disease progression¹⁷. Health care that uses a multi-disciplinary approach with the inclusion of nutrition experts saw an improved effectiveness in nutrition interventions and ultimately patient outcomes¹⁸. The reimbursement of nutrition services for medical nutrition therapy by public (Medicare) and private insurers cements the growing recognition of the services provided by nutrition experts.

The Bureau of Labor Statistics, U.S. Department of Labor in recent years has consistently projected an increase in demand for nutrition professionals. The 2019 – 2029 projection has an eight percent (8%) job growth¹. The Academy of Nutrition and Dietetics considers the bureau's projections as an underestimation of demand due to the escalation of diet-related diseases such as hypertension, diabetes, and obesity. The academy believes that more credentialed professionals are needed to engage in additional preventative services and disease management.

Maryland is home to several federal and private health care, food, and nutrition agencies and companies. Federal agencies such as the National Institutes of Health (NIH), Food and Drug Administration (FDA), and U.S. Department of Agriculture (USDA) have a high and steady demand for nutrition professionals to perform several functions including individualized nutrition counseling, conduct health and nutrition research, develop public health policies, and assist with keeping the food supply chain safe. Hospitals and other health care facilities are major sources of employment for nutrition professionals. Food and pharmaceutical industries are also utilizing the skills and training of nutrition experts.

Figure 2 shows job projections of healthcare professionals that are often involved in a multi-disciplinary approach to address nutrition-related health issues.

¹⁷ Sriram, K., Sulo, S., VanDerBosch, G., Partridge, J., Feldstein, J., Hegazi, R. A., & Summerfelt, W. T. (2017). A Comprehensive Nutrition-Focused Quality Improvement Program Reduces 30-Day Readmissions and Length of Stay in Hospitalized Patients. *JPEN. Journal of parenteral and enteral nutrition*, 41(3), 384–391. <https://doi.org/10.1177/0148607116681468>

¹⁸ Medical Nutrition Therapy (MNT) Systematic Review (2009). (n.d.). Retrieved October 20, 2020, from <https://www.andeal.org/topic.cfm?cat=3949>

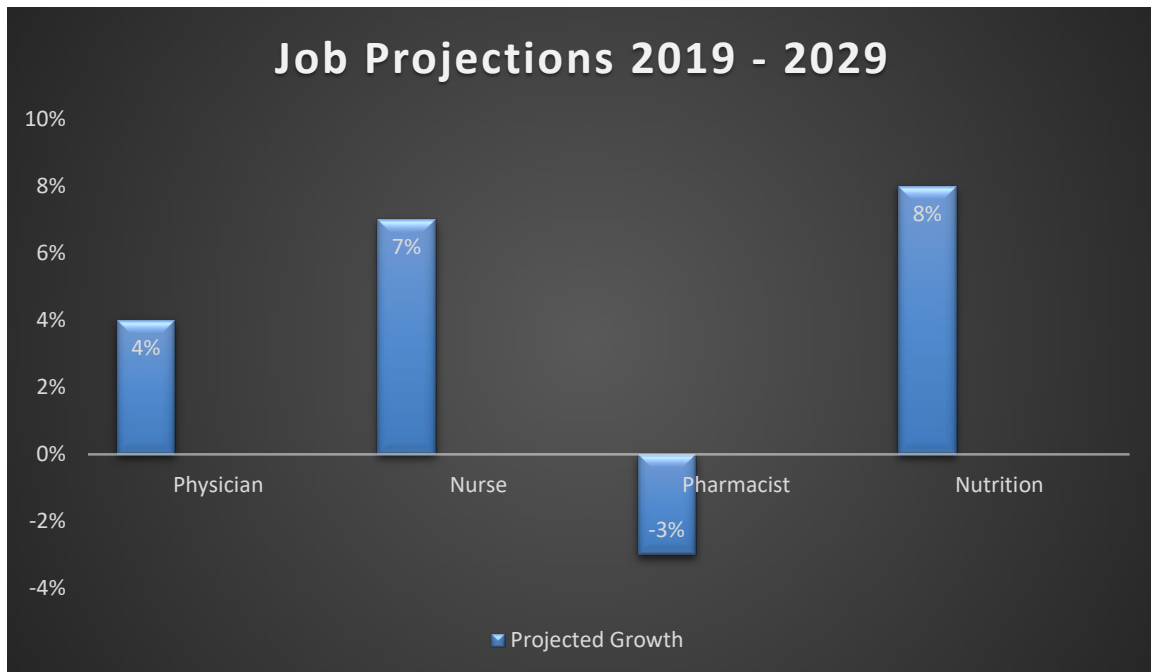


Figure 2: Selected Health Professionals Job Projections 2019 - 2029

D. Reasonableness of Program Duplication:

Few institutions in the region offer tracks being proposed by Hood College. No institution offers the FG, NS, nor SN tracks and therefore, the complete program is not duplicated in its entirety in the state or region. The state of Maryland has five (5) dietetic internship (DI) programs - none of which offers a combined graduate degree. The DI programs are at John Hopkins Bayview Medical Center, National Institute of Health, the University of Maryland - College Park, Medical Center, and Eastern Shore campuses. At the time of preparing the application, there are no FG programs in the state, West Virginia, Delaware, and the District of Columbia (D.C.). The state of Pennsylvania has four (4) FG programs (Seton Hill University, University of Pittsburgh, Drexel University, and Pennsylvania State University) and Virginia has one (1) program (Virginia Polytechnic Institute and State University). There are no SN tracks in the state and throughout the region. Given Hood's positioning in an agriculturally rich region of the state, along with our existing sustainability studies major, we are ideally situated to offer a nutrition program with a sustainability emphasis. Finally, our NS track is unique as it will offer the required graduate level credentialing opportunity for professionals with only an undergraduate degree.

E. Relevance to High-demand Programs at Historically Black Institutions (HBIs)

Morgan State University and University of Maryland Eastern Shore offer nutrition programs at the bachelor's degree level. Both are accredited didactic programs in dietetics (DPD). Also, the University of Maryland Eastern Shore offers a dietetic internship that terminates with an eligibility verification statement. Both universities do not offer a graduate degree with a dietetic internship or an FG track per Table 3:

Table 3: Nutrition Programs at Maryland HBIs

HBI	Nutrition Program	Program Type
Coppin State University	No	
Bowie State University	No	
Morgan State University	Yes	Bachelor's degree
University of Maryland Eastern Shore	Yes	Bachelor's degree; Dietetic internship

Historically Black Colleges and Universities have been the main pipeline in training black healthcare professionals including nutrition practitioners. In the U.S., black healthcare professionals are disproportionately underrepresented¹⁹. The Commission on Dietetic Registration reported in October 2020 that only 2.6% of RDNs are black or African American²⁰. Additional data are shown in Figure 3.

¹⁹ Noonan, A., Lindong, I., & Jaitley, V. N. (2013). The role of historically black colleges and universities in training the health care workforce. *American journal of public health*, 103(3), 412–415. <https://doi.org/10.2105/AJPH.2012.300726>

²⁰ Eat right™. Commission on Dietetic Registration the credentialing agency for the Academy of Nutrition and Dietetics. (2020, October.). Retrieved October 26, 2020, from <https://www.cdrnet.org/registry-statistics-new?id=1779>

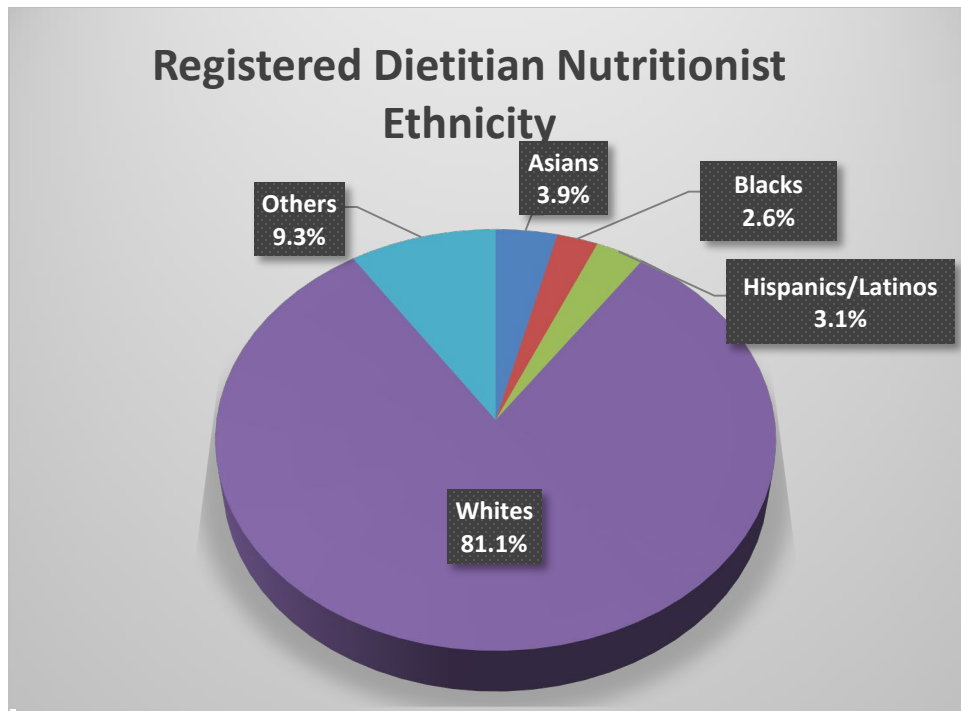


Figure 3: Registered Dietitian Nutritionist Ethnicity

Hood College acknowledges the need for diversity, equity, and inclusion and fully recognizes its impact on health outcomes. Based on the need within the field, the proposed program will reserve 20% of its available spots for students who are attending or have graduated from a Historically Black Colleges and Universities (HBCU) and Minority Serving Institutions (MSI), who have met the program's admission requirements.

F. Relevance to the identity of Historically Black Institutions (HBIs)

Not applicable.

G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes (as outlined in COMAR 13B.02.03.10):

I. *Describe how the proposed program was established and also describe the faculty who will oversee the program.*

A distinguished Hood College alumna and former trustee – Edith Howard Hogan – donated \$500,000 to the College for the development of a nutrition program. Ms. Hogan received her bachelor's degree in 1959 from the College and then went on to pursue a career in the field of nutrition and dietetics as a credentialed nutrition practitioner – Registered Dietitian

Nutritionist (RDN). Her very successful career includes an appointment by President Reagan to serve in the USDA's Agriculture Marketing Service. The nutrition program is an ideal fit for Hood College's expansion plan of developing a School of Health Sciences that will include nursing, public health, counseling and other related programs. This will present an excellent experience for inter-professional training simulating the workplace experience. Letters of support for the proposed nutrition program were received from the following programs/majors and groups:

- *B.A. in Sustainability Studies*
- *B.A. in Environmental Science and Policy*
- *M.S. in Environmental Biology*
- *M.S. in Interdisciplinary Studies in Human Behavior*
- *Frederick Food Security Network*

The program will be directed by a nutrition faculty with a terminal degree and a RDN with five or more years of experience in higher education and leadership.

II. Describe educational objectives and learning outcomes appropriate to the rigor, breadth, and (modality) of the program.

The outcomes listed below are based on scientific evidence, job related skills and knowledge, scope of practice, and health care equity. The outcome also aligns with The Accreditation Council for Education in Nutrition and Dietetics (ACEND), Middle States Commission on Higher Education (MSCHE), and the College's rigorous academic standards.

Dietetics (FG) Track

Upon completion of the program concentration, students who achieve a Master of Science in Nutrition and a verification statement for eligibility to sit for the national registration exam for the RDN credential will be able to:

1. Apply foundational sciences to food and nutrition knowledge to meet the needs of individuals, groups, and organizations.
2. Demonstrate leadership, business and management principles to guide practice and achieve operational goals.
3. Integrate evidence-informed practice, research principles and critical thinking into practice.
4. Apply and integrate client/patient-centered principles and competent nutrition and dietetics practice to ensure positive outcomes.
5. Demonstrate professional behaviors and effective communication in all nutrition and dietetics interactions.

6. Apply food systems principles and management skills to ensure safe and efficient delivery of food and water.
7. Design community nutrition projects by applying community and population nutrition health theories.

General Nutrition Science (NS) Track

Upon completion of the program concentration, students who achieve a Master of Science in Nutrition will be able to:

1. Apply knowledge of pathophysiology and nutritional biochemistry to physiology, health and disease.
2. Demonstrate understanding anatomy, physiology, biochemistry, and social sciences in relation to food and nutrition.
3. Understand environmental, molecular factors (e.g. genes, proteins, metabolites) and food in the development and management of disease.
4. Gain a foundational knowledge on public and global health issues and nutritional needs.
5. Apply knowledge of social, psychological and environmental aspects of eating and food.
6. Use scientific methods and ethical research practices when reviewing, evaluating and conducting research.
7. Demonstrate effective leadership, communication, collaboration and advocacy skills.

Sustainability Studies and Applied Nutrition (SN) Track

Upon completion of the program concentration, students who achieve a Master of Science in Nutrition with an emphasis in sustainability studies will be able to:

1. Apply and demonstrate an understanding of agricultural practices and processes.
2. Apply food systems principles and management skills to ensure safe and efficient delivery of food and water.
3. Utilize program planning steps to develop, implement, monitor and evaluate community and population programs.
4. Engage in legislative and regulatory activities that address community, population and global nutrition health and nutrition policy.
5. Apply knowledge of social, psychological and environmental aspects of eating and food.
6. Use effective leadership, communication, collaboration and advocacy skills.
7. Gains a foundational knowledge on public and global health issues and nutritional needs.

III. Explain how the institution will provide for assessment of student achievement of learning outcomes in the program and document student achievement of learning outcomes in the program

The curriculum is designed to build a solid foundation that is evidence-based and to master skills that will make our program graduates work-ready at time of hire. Critical thinking and problem-solving skills will be honed while working on real-life problems. It is anticipated that program graduates will be successful in gaining professional credentials and licensures and employment in the field of nutrition.

Ongoing assessment developed by the program and required by accrediting bodies (Middle States and ACEND) will be conducted to evaluate learning outcomes. Assessment tools including tests, lab exercises, projects, case studies, research papers, and oral presentations will be used to measure students' knowledge and skills. For field skills, competencies will be assessed using performance indicators. Feedback from surveys, focus groups, advisory board, students – past and present – will be collected on an annual basis and evaluated. Findings will be used for continuous improvement and program growth.

IV. Provide a list of courses with title, semester credit hours and course descriptions, along with a description of program requirements.

New Courses:

NUTR 500 Sustainable Food Systems and Food Security – 3 credits. Examination of food security, food systems, and nutrition in relation to sustainable farming and social justice with the interrelationship among financial markets, agri-business industries, international trade, public health, and climate change. Topics will include community-based strategies to address food system, social change, and health equity; and the role of university-community partnerships to increase food access to nutritious food.

NUTR 501 Advanced Medical Nutrition Therapy – 3 credits. *Prerequisites: NUTR 503 Pathophysiology and Pharmacology; NUTR 504 Nutritional Biochemistry Seminar.* Advanced therapies and evidence based practice incorporating pathology, biochemistry, and drug therapy in prevention and treatment of disease specializing in pediatric nutrition, obesity, cardiovascular disease, diabetes, cancer, renal disease, and gastrointestinal diseases. Initiation and management of enteral and parenteral nutrition therapy including access, metabolic and mechanical complications. Only students enrolled in the ACEND accredited track may enroll.

NUTR 502 Nutritional Status Assess & Motivational Counselling - 2 credits. *Prerequisites: NUTR 503 Pathophysiology and Pharmacology; NUTR 504 Nutritional Biochemistry Seminar* Comprehensive approaches for conducting nutrition assessment of individuals and populations throughout the lifecycle and conducting physical examination and strength assessment for nutrition diagnoses. The course includes laboratory experiences for learning and applying assessment and physical examination techniques. Only students enrolled in the ACEND accredited track may enroll or with instructor's consent.

NUTR 503 Pathophysiology & Pharmacology - 3 credits. Application of concepts of physiologic response and manifestations of alterations in normal body functioning across the lifespan and drug-nutrient interaction that provides the foundation for the clinical decision-making and management of care. Pharmacokinetics and pharmacodynamics of drugs and herbal supplements frequently used to treat diet-related chronic diseases will be discussed.

NUTR 504 Advanced Nutritional Biochemistry Seminar - 2 credit. Molecular, biochemical and metabolic characteristics of nutrients and bioactive compounds in relation to enzyme kinetics, bioenergetics, the metabolic pathways, and the regulation of metabolism in different physiologic states. Students will select, and discussing recent published research and to exhibit advanced understanding of human metabolism.

NUTR 505 Leadership, Management, and Advocacy Seminar - 2 credit. Exploration of theories of leadership, management, and organization behavior and impact of social, political, and economic factors affecting health care. The role of nutrition professionals as leaders and advocates in shaping policies will be examined.

NUTR 506 Global Health and Nutrition - 3 credits. A global perspective of public health and nutrition concerns in various nations, assessment of nutritional status of diverse populations, international health and nutrition organizations, policies, and interventions. Understanding the roles of dietitians, nutritionists, and others in creating and implementing international public health and nutrition policies and interventions. The course includes a study abroad option.

NUTR 507 Dietetics Clerkship - 3 credits. *Prerequisites: NUTR 502 Nutritional Status Assess & Motivational Counselling; NUTR 501 Advanced Medical Nutrition Therapy.* Competency-based training in areas of clinical, public health/community, and management. Students will satisfy the supervised practice for Registered Dietitian Nutritionist (RDN) credential. Only students enrolled in the ACEND accredited track may enroll. A total of 9 credits are required as partial eligibility for CDR Verification Statement.

NUTR 509 Program Planning, Management, Evaluation - 3 credits. Identification of population-based needs for nutrition intervention. Students will develop of programs to meet those needs and evaluate the effectiveness of the interventions using research methods, epidemiology, biostatistics, proposal writing, budget planning, project management, and program evaluation.

NUTR 511 Nutrition Concepts and Controversies - 4 credits. Understanding chemistry and biochemistry of nutrients, bioactive compounds and their role in prevention and treatment of diseases and how these concepts relate to current nutrition topics being discussed on social and mass media.

NUTR 512 Nutritional Genomics & Microbiome – 3 credits. *Prerequisite: NUTR 504 Advanced Nutritional Biochemistry Seminar.* Provides the foundation in genetics/genomics and explore the role of nutritional genomics and epigenetics in the prevention and treatment of chronic disease for possibly evidence-based precision medicine. The interrelationships of biochemistry, physiology, microbiome, genetics, and nutrition will be used for nutritional status assessment.

NUTR 530 Health Communication – 3 credits. Examine the use of mass and social media in disseminating health and nutrition information to target populations that are culturally and ethnically appropriate and effective. Students will be required to develop a media campaign to address a health/nutrition issue.

NUTR 556 Healthy Aging - 3 credits. This course focuses on theoretical perspectives on aging, diet, cross-cultural, psychological, physical activity, sociological, economic and political factors impacting aging. Living conditions, access to healthcare, food, and the role of health care professionals will be examined.

NUTR 579 Non-Thesis Research - 3 credits. *Prerequisite: ENV 505 Biostatistics/BIFX 503 Statistics for Bioinformatics/MATH 500 Research Methods.* Explore a nutrition related topic, problem, or issue, by designing, and implementing an investigation to address a research question under the guidance of an academic adviser. Students will be required to submit a scholarly written report and present the research findings at a conference or professional meeting.

NUTR 596 Nutrition Independent Study 1 - 3 credits. A practicum/field experience in a professional environment. 1 credit is equal to 50 hours of practicum hours, 2 credits is equal to 100 hours of practicum and 3 credits is equal to 150 hours of practicum experience.

NUTR 599 Special Topics in Nutrition – 3 credits. Investigating Issues, trends and research related to current concerns within selected areas of food and nutrition by reviewing current literature and evidence-based protocol.

Existing Courses

ENV 501 Introduction to Environmental Biology - 3 credits. Introduces principles of environmental biology with an in-depth analysis of biological and social variables associated with environmental issues. Energy, natural resource use, population dynamics and technological developments are examined in the context of ecological systems. Emphasis is on global climate change, and its effects are related to the concepts in environmental biology.

ENV 502 Principles of Ecology - 3 credits. Analyzes interactions between organisms and the environment. A quantitative approach will be used to examine population dynamics, community interactions, and ecosystem processes. The application of modern ecological theory to current environmental problems is emphasized including the observed and anticipated ecological impacts of global climate change.

ENV 503 Pollution Biology - 3 credits. *Prerequisite: Completion of or concurrent enrollment in ENV 501 or permission of instructor.* Examines sources, fates and biological effects of environmental pollutants. Topics covered include: air, water and soil pollution; techniques for monitoring and evaluating pollution effects; and pollution control technologies. Factors leading to global climate change will be examined in depth. The social, economic, and political issues surrounding pollution problems are all examined.

ENV 505 Biostatistics – 3 credits. Introduces statistical methods used in biological research. Topics include sampling methods, frequency distributions, descriptive statistics, hypothesis testing, probability, and both parametric and non-parametric tests. A statistical software package is introduced in laboratory exercises. Statistical problems involving global climate change are used throughout the semester.

MATH 500 Research Method – 3 credits. Basic statistical methods as they apply to education and other fields. Topics include frequency distributions and their representations, measures of central tendency and dispersion, elementary probability, statistical sampling theory, testing hypotheses, non-parametric methods, linear regression, correlation, and analysis of variance.

BIFX 503 Statistics for Bioinformatics – 3 credits. This course will focus on the statistical concepts that are used in biology and medicine to analyze and validate data. Topics will include probability, hypothesis testing, tests for variables (e.g. chi-square, Fisher's test), t-test, linear and multivariate regression, covariance and Bayesian statistic.

SUS 410/NUTR 510 Bioengineering for Sustainability - 3 credits. This course will provide an introduction to the use of enzymatic and microbial reactions in the production of desirable foods, beverages, biofuels and other bio-products.

SUS 415NUTR /515 Urban Agriculture - 3 credits. This course provides a solid foundation in sustainable urban agriculture and the community building process. Students will gain hands-on experience working with organizations within the Frederick Food Security Network who have, or will be installing, an urban garden.

BMS 512 - Biochemistry of Intermediary Metabolism - 3 credits. *Prerequisite: Two semesters of organic chemistry.* A study of the generation and storage of metabolic energy and of the structure, biosynthesis and function of nucleic acids.

A total of 42 credits are required for the FG track. Program requirements for the FG track are listed below:

NUTR 500 – Sustainable Food Systems and Food Security (3 credits)
NUTR 501 - Advanced Medical Nutrition Therapy (3 credits)
NUTR 502 - Nutritional Status Assess & Motivational Counselling (2 credits)
NUTR 503 - Pathophysiology & Pharmacology (3 credits)
NUTR 504 - Advanced Nutritional Biochemistry Seminar (2 credits)
NUTR 505 - Leadership, Management, and Advocacy, Seminar (2 credits)
NUTR 506 - Global Health and Nutrition (3 credits)
NUTR 507 - Dietetics Clerkship (3 credits – 9 credits required)
NUTR 509 - Program Planning, Management, and Evaluation (3 credits)
NUTR 512 - Nutritional Genomics & Microbiome (3 credits)
NUTR 530 – Health Communication (3 credits)
NUTR 579 - Non-Thesis Research (3 credits)
MATH 500 - Research Method/ENV 505 – Biostatistics/BIFX 503 Statistics for Bioinformatics (3 credits)

Total Core Credits: 42

A total of 32 credits are required for the NS track. The core is 17 credits and 15 electives are required. Program Requirements NS track:

Core

NUTR 505 - Leadership, Management, and Advocacy, Seminar (2 credits)
NUTR 506 - Global Health and Nutrition (3 credits)
NUTR 509 - Program Planning, Management, and Evaluation (3 credits)
NUTR 512 - Nutritional Genomics & Microbiome (3 credits)
NUTR 579 - Nutrition Independent Study (3 credits)
MATH 500 - Research Method/ENV 505 Biostatistics/BIFX 503 Statistics for Bioinformatics (3 credits)

Total Core Credits: 17

Electives (15 credits required)

NUTR 500 – Sustainable Food Systems and Food Security (3 credits)
NUTR 503 - Pathophysiology & Pharmacology (3 credits)
NUTR 504 - Advanced Nutritional Biochemistry Seminar (2 credits)
NUTR 530 – Health Communication (3 credits)
NUTR 556 - Healthy Aging (3 credits)
NUTR 599 - Special Topics in Nutrition (3 credits)
ENV 501 - Introduction to Environmental Biology (3 credits)
SUS 415/NUTR 515 - Urban Agriculture (3 credits)
SUS 410/NUTR 510 - Bioengineering for Sustainability (3 credits)
BMS 512 - Biochemistry of Intermediary Metabolism (3 credits)

A total of 32 credits are required for the SN track. The core is 20 credits and 12 electives are required. Program requirements for the SN track:

Core

NUTR 500 – Sustainable Food Systems and Food Security (3 credits)
NUTR 505 - Leadership, Management, and Advocacy, Seminar (2 credits)
NUTR 506 - Global Health and Nutrition (3 credits)
NUTR 509 - Program Planning, Management, and Evaluation (3 credits)
NUTR 511 - Nutrition Concepts and Controversies (3 credits)
NUTR 579 - Nutrition Independent Study (3 credits)
MATH 500 - Research Method/ENV 505 Biostatistics/BIFX 503 Statistics for Bioinformatics (3 credits)

Total Core Credits: 20

Electives (12 credits required)

NUTR 530 - Health Communication (3 credits)
NUTR 599 - Special Topics in Nutrition (3 credits)
ENV 501- Introduction to Environmental Biology (3 credits)
ENV 502 - Principles of Ecology (3 credits)
ENV 503 - Pollution Biology (3 credits)
SUS 410/NUTR 510 - Bioengineering for Sustainability (3 credits)
SUS 415/NUTR 515 - Urban Agriculture (3 credits)

V. *Discuss how general education requirements will be met, if applicable.*

Not applicable.

VI. *Identify any specialized accreditation or graduate certification requirements for this program and its students.*

The FG program graduates will receive an eligibility verification statement. The verification statement signifies that the program graduate has successfully completed the degree and supervised practice and is eligible to sit the registration exam for dietitian nutritionists. The mission of the FG track will be “... *prepare competent entry-level Registered Dietitian Nutritionists (RDN) using cutting-edge student-centered learning, research, service, supervised clinical practice and other experiences in order to be leaders in the field of nutrition and dietetics, promoting health and wellness in diverse and underserved communities.*” The mission embraces the mission, vision, and values of the College.

VII. *If contracting with another institution or non-collegiate organization, provide a copy of the written contract.*

Not applicable.

VIII. *Provide assurance and any appropriate evidence that the proposed program will provide students with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technology competence and skills, technical equipment requirements, learning management system, availability of academic support services and financial aid resources, and costs and payment policies.*

It is the College’s mandatory policy and standard practice of operation to provide current and accurate information on academic programs, curriculum, course and degree requirements. This is also a requirement by accrediting agencies and the program will adhere to policy. The information will be available in the College Catalog and on the website at www.hood.edu. Tuition, fees, and payment policies including a payment plan is available at the College’s website (www.hood.edu).

One of the many strengths of Hood College is the low student to faculty ratio. The low student to faculty ratio of 11:1 and small class size enhances the learning environment by allowing more personalized, high-quality attention. The College is committed to maintaining this low ratio—not to exceed 14:1. Currently, approximately 90% of the faculty hold doctoral or terminal degrees, and likewise, the nutrition program will hire terminal degree holders. Faculty will serve as advisors to further enhance the learning experience and interactions. The Information Technology (IT) Department provides technical support and is responsible for the proper operation and configuration of all college-owned computers, software, network,

telephone, computer labs and information infrastructure. Hood's learning management system is Blackboard and is accessible via username and password. The classrooms are fully functional and equipped smart rooms. The students will have access to the building after hours to utilize the resources in the building. At the learning commons, students will have access to study rooms with reading materials, computer labs, and kitchenette.

The program will have administrative support for clerical duties and general office management. In addition to the faculty serving as advisors, the Josephine Steiner Student Success Center supports undergraduate and graduate students. The center provides tutoring, coaching, and writing support. Students will be able to take advantage of the services offered by the Office of Accessibility Services, which is hosted within the Josephine Steiner Student Success Center.

IX. Provide assurance and any appropriate evidence that advertising, recruiting, and admissions materials will clearly and accurately represent the proposed program and the services available.

Hood College follows a model of centralized recruitment and admissions under the direction of The Graduate School, led by the Dean of the Graduate School. Program information for all programs at Hood College are readily available on the College's website. The information is presented in a user-friendly format. The nutrition program will be posted in a similar manner. Recruitment and advertising materials for the program will also be posted on the website and distributed at academic fairs and professional conferences. The program will have a webpage on the website with detailed program information that will include learning and student outcomes. The website will be monitored and updated as needed. The application form will be easily accessible to prospective students on the College's website. Further, applicants to the FG program will participate in ACEND's centralized matching process.

H. Adequacy of Articulation

I. If applicable, discuss how the program supports articulation with programs at partner institutions. Provide all relevant articulation agreements.

Not applicable.

I. Adequacy of Faculty Resources (as outlined in COMAR 13B.02.03.11).

The nutrition program curriculum includes new and existing courses. The new courses will be taught by nutrition faculty. Upon approval of the nutrition program, the College will hire faculty with terminal degrees and professional credentials. The faculty will be expected to engage in teaching, research/scholarship, and service to the College and the field of nutrition. The existing

courses will continue be taught by the experienced and qualified faculty currently in place. Existing courses from Environmental Sciences, Sustainability Studies, Gerontology, and Mathematics programs will be incorporated into the nutrition curriculum. The College has already hired a program director to guide the development of the program. Dr. Anglin has been a Registered Dietitian Nutritionist (RDN) and Licensed Dietitian (LD) since 2003. She is also a fellow of the Academy of Nutrition and Dietetics (FAND). She has served as Didactic Program in Dietetics (DPD), Individualized Supervised Practice Pathways (ISPP), Dietetic Internship (DI), and Master of Science with Dietetic Internship (MS-DI) program director at other higher education institutions. At Augusta University, she was the founding program director for the MS- DI program. In 2019, she was recognized as an outstanding educator by Nutrition and Dietetic Educators and Practitioners (NDEP); an organizational unit within the Academy of Nutrition and Dietetics (AND). Table 4 summarizes the existing faculty, academic preparation and new hires to teach the courses described herein. In addition to the administrative duties, the program director will teach, conduct research, and engage in service.

Table 4: Academically Qualified Faculty

Faculty	New/Existing	Rank/Status	Degree/Credentials	Courses
Drew Ferrier	Existing	Professor, Biology	PhD Environmental Sc.	SUS 515 & 510
Sue Carney/ Eric Kindahl	Existing	Assoc. Professor, Biology	PhD Biology	ENV 501 & 502
Biology	Existing	Adjunct, Biology	PhD Biology/ Environmental Sc.	ENV 505
Biology	Existing	Adjunct, Biology	PhD Biology/ Environmental Sc.	ENV 503
James Parson	Existing	Assoc. Professor, Mathematics	PhD Mathematics	MATH 500
Miranda Darby	Existing	Asst. Professor, Bioinformatics	PhD Molecular Biology and Genetics	BIFX 503
Judith Anglin	Existing	Assoc. Professor, Nursing	PhD Nutrition, RDN, LD/LDN	NUTR 596, 507, 506, & 579
Nutrition	New	Clinical Faculty, Nursing	M.S Nutrition, RDN, LD/LDN	NUTR 501, 502, 599, & 556
Nutrition	New	Assist/Assoc. Professor, Nursing	PhD Nutrition	NUTR 500, 505, 530, 509, 512, 511, & 504

The College has a Center for Teaching and Learning. The center's purpose is to "provide support and encouragement to explore, develop and refine teaching pedagogy to promote academic excellence, and it is committed to promoting teaching and learning as ongoing and collaborative processes of inquiry, experimentation and reflection." It is a collaboration of faculty and staff, which promotes and supports pedagogy, teaching innovation and faculty scholarship/research in all of its forms.

Further, the Center's mission is to:

- Promote the value and practice of excellent teaching both in and out of the classroom to facilitate student learning and growth;
- Serve as an on-campus resource that provides professional development opportunities to promote teaching and learning;
- Provide opportunities for faculty to reflect on their work, share and learn from the experiences and expertise of their colleagues;
- Encourage faculty collaboration to enhance and refine their teaching;
- Promote active engagement and innovation in teaching and learning; and Act as a hub for knowledge of effective, evidence-based practices as well as a conduit to bring faculty together²¹.

All faculty will have access to a small research stipend to advance individual research in their field and access to a block of travel funds for attending and presenting new material at conferences.

J. Adequacy of Library Resources (as outlined in COMAR 13B.02.03.12).

The College is about to launch the reopening of its library as a visionary learning commons. The library supports graduate and undergraduate programs. The Beneficial-Hodson Library provide books, eBooks, government publications, journals, audiovisuals, databases, historical collections, and more, to support students and faculty. The library adds to its collection of monographic and subject-specific materials, based upon the recommendations of faculty. As a participant in MIC, the Beneficial-Hodson Library is able to obtain almost any book held by those partner libraries within 24 hours through our shared courier service. Interlibrary loan (ILL) is available as an alternative for materials not held within the Consortium, and our interlibrary loan manager is able to fill about 85% of all ILL requests. Journal materials are available in both print and electronic formats. The online "Journal Finder" lists the combined print and electronic holdings (including full-text and citation-only titles) and enables searching for specific journals by title or by subject.

²¹ Center for Teaching & Learning. (n.d.). Retrieved November 03, 2020, from <http://www.hood.edu/CTL>

A selected list of nutrition and health related journals are provided below:

- Journal of the Academy of Nutrition and Dietetics
- Journal of Nutrition
- The American Journal of Clinical Nutrition
- Annals of Nutrition and Metabolism Annual
- Review of Nutrition Food Security
- Genes and Nutrition
- Journal of Nutrition
- Journal of Human Nutrition and Dietetics

Electronic access to books, journals and other materials are available at
<https://www.hood.edu/library>

K. Adequacy of Physical Facilities, Infrastructure and Instructional Equipment (as outlined in COMAR 13B.02.03.13)

The proposed program will be taught using existing resources such as the simulation center and standard classroom facilities. In addition, both space and simulation areas are planned for expansion with the recent formalization of a lease agreement with Frederick Health. The College has already established sufficient hardware and software capacity to support this program. Students can conveniently access lab and classroom software remotely through a virtual environment at any time (24 hours per day, 7 days per week), using Windows, Mac, iPad, iPhone, or Android devices. Therefore, network infrastructure at Hood College needed to run the courses in the nutrition is more than adequate.

L. Adequacy of Financial Resources with Documentation (as outlined in COMAR 13B.02.03.14)

It is anticipated that as the program gains visibility, enrollment will increase annually.

Table 5: Revenues

REVENUES					
Resource Categories	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
1. Reallocated Funds	0	0	0	0	0
2. Tuition/Fee Revenue					
a. Number of F/T Students	8	8	10	12	15
b. Annual Credit Hour Generation	176	330	374	462	572
c. Credit Hour Rate	\$725	\$747	\$769	\$792	\$816
d. Total F/T Revenue (b x c)	\$127,600	\$246,510	\$287,606	\$365,904	\$466,752
e. Number of P/T Students	5	8	10	12	15
f. Annual Credit Hour Generation for 2e	90	236	346	424	506
g. Credit Hour Rate	\$725	\$747	\$769	\$792	\$816
h. Total P/T Revenue (f x g)	\$65,250	\$176,292	\$266,074	\$335,808	\$412,896
i. Total Tuition Revenue (d + h)	\$192,850	\$422,802	\$553,680	\$701,712	\$879,648
3. Grants, Contracts & Other Ext. Sources	\$250,000	0	0	0	0
4. Other Sources	0	0	0	0	0
Total (Add 1-4)	\$442,850	\$422,802	\$553,680	\$701,712	\$879,648

Line 2a and 2e: Assumes ~5% attrition

Line 2c and 2g: Assumes 3% increase per credit per year.

Line 2f: Assumes students will take 18 credits/year. Part-time students for NS and SN track only.

Line 3: 10% of donation for program development

Table 6: Expenditures

EXPENDITURES					
Expenditure Categories	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
1. Faculty (b + c)	\$208,585	\$214,842	\$221,288	\$227,926	\$234,764
a. AC (full-time)	2	2	2	2	2
b. Total Salary (assume 3% salary increase)	\$158,620	\$163,378	\$168,280	\$173,328	\$178,528
c. Total Benefits (est. 31.5% of salary)	\$49,965	\$51,464	\$53,008	\$54,598	\$56,236
d. Additional Adjunct Faculty (number of credit hours taught)	2	2	2	2	2
e. Additional Adjunct Faculty for F/T course buyout	0	0	0	0	0
f. Total Adjunct Faculty Salary	\$10,868	\$14,490	\$14,490	\$14,490	\$14,490
2. Administrative Staff (b + c)	0	0	0	0	0
a. FTE	0	0	0	0	0
b. Total Salary	0	0	0	0	0
c. Total Benefits	0	0	0	0	0
3. Support Staff	0	0	0	0	0
a. FTE	0	0	0	0	0
b. Total Salary (assume 3% salary increase)	0	0	0	0	0
c. Total Benefits (est. 30%)	0	0	0	0	0
4. Equipment	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
5. Library	\$0	\$0	\$0	\$0	\$0
6. Software	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
7. Marketing	\$10,000	\$5,000	\$2,500	\$2,500	\$2,500
8. Professional development	\$5,000	\$7,000	\$7,000	\$7,000	\$7,000
9. Other Expenses	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
Total Expenditures (Add 1-7)	\$242,453	\$249,332	\$253,278	\$259,916	\$266,754
Net Surplus/Deficit (Revenues-Expenditures)	\$200,397	\$173,470	\$300,402	\$441,796	\$612,894

Line 8. Professional Development for faculty and preceptor training

Line 9. Other Expenses = Registration exam prep materials

M. Adequacy of Provisions for Evaluation of Program (as outlined in COMAR 13B.02.03.15).

Evaluation of program will include both formative and summative assessment, using direct and indirect assessment strategies to meet objectives and student learning outcomes. Supervised practice competencies will be assessed using performance indicators as required by the accrediting agencies.

Procedures for evaluating courses:

- Direct assessment of program courses will include review of a course matrix or table that maps each class assignment to course objectives.
- Direct assessment of program courses also will include a review of grading rubrics with clear grading criteria for each assignment, so students may evaluate their own work (formative) before submitting that work for a summative assessment.
- Indirect assessment of courses will occur via course evaluations completed by students, and student interviews or questionnaires.

Procedures for evaluating student learning outcomes:

- Direct assessment will also occur using a sample of student exams/papers and projects with subsequent modification of course content, based on these reviews.
- Competency-based assessment for supervised practice (FG track only).
- Indirect assessment of student learning outcomes will occur via student surveys, course evaluations, and/or student interviews upon students' completion of the course and/or program.

Procedures for evaluating faculty:

- Direct assessment of program faculty will include a review of faculty credentials such as degrees, awards, years of professional experience, publications, conference presentations, course retention rates, grade distributions, and faculty rank.
- Direct assessment of program faculty also will include classroom observations of faculty to assess classroom climate, rapport of faculty with students, actual instructional strategies used, and student response to such instructional strategies.
- Indirect assessment of program faculty will be obtained through student surveys and course evaluations.

N. Consistency with the State’s Minority Student Achievement Goals (as outlined in COMAR 13B.02.03.05).

Thirty-eight percent (38%) of the student body are from under-represented racial or ethnic populations—one of the highest percentages across colleges/universities in the state of Maryland—which demonstrates Hood College’s commitment to a diverse student population. The program will reserve 20% of its available spots for students who are attending or attended Historically Black Colleges and Universities (HBCU) and Minority Serving Institutions (MSI), who have met the program’s admission requirements. There are several offices within the divisions of academic and graduate student life that promote inclusion and cultural sensitivity. The Office of Multicultural Affairs and International Student Programs (OMA/ISP) provides programs for students and supports activities for African-American, Hispanic, Asian, Native American and international students and organizations such as the International Club, Black Student Union and La Comunidad. To meet the needs of the growing number of students from other countries, the director of OMA/ISP assists these students in making the adjustment to a new country and in achieving their educational objectives. Additional graduate programming on inclusivity is supported by both The Graduate School and student-led groups, like Graduate Students of Color (GSOC) and the Graduate Student Association (GSA). The college also has a strong track record for supporting our students of color from a variety of successful grant initiatives (e.g., HRSA²² and CGS-JED^{23,24})

O. Relationship to Low Productivity Programs Identified by the Commission:

This program is not directly related to an identified low productivity program.

²² <https://www.hood.edu/news/hood-college-receives-22-million-grant-hrsa>

²³ <https://cgsnet.org/new-initiative-support-graduate-student-mental-health-and-wellness>

²⁴ <https://www.hood.edu/news/dean-grad-school-joins-national-mental-health-committee>

P. Adequacy of Distance Education Programs (as outlined in COMAR 13B.02.03.22)

Modes of delivery for the SN and NS track will include traditional face-to-face, hybrid, synchronous and/or asynchronous online instruction. The FG track will use only face-to-face instruction. We are planning for some coursework to be offered in hybrid and online formats in the SN & NS tracks, but neither track will be 100% online. Even so, Hood College has several fully online programs, which it is approved to offer by both MSCHE and MHEC. Thus, we already have in place all of the required best practices of the C-RAC guidelines in order to deliver content effectively online. Faculty will also be required to complete the college's trainings in hybrid and online instruction, offered through the Center for Teaching and Learning. Additional faculty support of online course development is provided by an instructional designer.