

#### CONNECTING PIPELINES TO PATHWAYS FOR HEALTH EQUITY

Undergraduate and Graduate Student Enrichment Programs  
at the Herbert Wertheim College of Medicine (HWCOM):  
Fostering Diversity in the Health Professions

#### FLORIDA INTERNATIONAL UNIVERSITY

#### KEY POINTS

The Herbert Wertheim College of Medicine (HWCOM) developed two pathway programs designed to mentor underrepresented students and enhance their skills in continuing with or preparing for entry into health professions education programs:

- ✓ **Florida Science Training and Research (FSTAR) program** identifies academic, cultural, and social factors that influence successful enrollment in the health professions.
- ✓ Applicants must meet specific academic criteria for the FSTAR program.
- ✓ FSTAR program includes:
  - Intensive eight-week summer residential academic and social enrichment program over three years
  - Academic counseling, access to resources, and support for managing psychosocial stressors in pursuing academic success
- ✓ **Graduate Certificate Program (GCP) in Molecular and Biomedical Sciences** established to strengthen the biomedical knowledge and professional skills of participants entering health professions degree programs. Program includes:
  - Eight graduate-level courses over two semesters
  - Mandatory academic advisory meetings
  - Learning specialist advising
  - Medical school admission counseling

#### ISSUES AND CHALLENGES

Meeting a need to help diversify matriculants in the healthcare professions through programs that support and enhance professional knowledge and skills of racial/ethnic minorities.

The healthcare profession has been slow to diversify its matriculants, including racial/ethnic minorities, students of low socioeconomic status, and first-generation college students. Barriers exist within the education pipeline that affect the competitiveness



of students underrepresented in medicine from pursuing careers in the healthcare professions.

### THE FLORIDA INTERNATIONAL UNIVERSITY HWCOM APPROACH

Address the need for support and mentorship that focuses on the psychosocial stressors impacting racial/ethnic minority learners; and develop a program that enhances the professional and knowledge skills necessary to be competitive in health profession degree programs.

This Case Study focuses on two pathway programs developed at The Herbert Wertheim College of Medicine (HWCOM) at Florida International University (FIU) designed to mentor underrepresented students and enhance their skills in continuing with or preparing for entry into health professions education programs.

### Florida Science Training and Research Program Identifies and Recruits from HBCUs

The **Florida Science and Research Program (FSTAR)**, initially funded through a grant from the Office of Minority Health of the U.S. Department of Health and Human Services in 2016, created a relationship between Historically Black Colleges and Universities (HBCU) and HWCOM FIU to identify and recruit underrepresented in medicine students (URiM). Program funding included three years of recruitment, with an additional year for follow-up/monitoring. There was a no-cost extension for one year, during which an additional 11 students were recruited for a total program enrollment of 57 students (Year 1 — 13, Year 2 — 13, Year 3 — 20, Year 4 — no recruiting, Year 5 — 11).

The FSTAR program was designed to identify the academic, cultural, and social factors that influence successful enrollment in medical or other health profession schools. One of the goals was to develop means to mentor underrepresented students and provide them with academic and career counseling to promote careers in the health professions.



### Criteria for Participation and FSTAR Program Details

A panel of HWCOM faculty and staff selected applicants who met specific criteria: 3.0 overall GPA; completed fewer than 35 college credits; completed two semesters of college (full-time) by June 2020 at an HBCU partner institution; had taken the SAT/ACT exams; is a U.S. citizen or permanent resident; and completed an application with two recommendations (one from a science professor).

The program provides multiple channels for support and follow-up, including:

- The opportunity to participate in an intensive eight-week summer residential academic and social enrichment program at FIU HWCOM over three years;
- A longitudinal component requiring that a program coordinator and a social worker engage with participants monthly through in-person site visits and via phone or Skype, providing academic counseling, access to resources, and support in managing the psychosocial stressors that often occur in the pursuit of academic success; and
- Support for test preparation (GRE, MCAT, etc.) courses and programs.

### Assessing Effectiveness of FSTAR Program

The effectiveness of the FSTAR program was assessed and reported annually to the funding agency. Metrics collected included: student evaluations of the application process and the eight-week summer residential program; and a series of psychosocial instruments used to collect data to assist in the development of individualized plans for each student. Data was collected upon completion of each academic year of the program.

**FSTAR Metrics**

Year of Program	# of participants	# graduated BS Degree	# enrolled to med. school	# EAP Class of 2026	# in PA Prog.	# in Biomed. Masters program	# in Public Health Masters Prog.	# in Health Admin Masters program	# in Nursing Prog.	# in Post Bac program	# in GCP	Total # in other STEM Prog.
2016	13	12	4	--	1	1	1	--	--	--	1	4
2017	13	11	2	--	--	1	--	1	--	1	--	3
2018	20	2	--	*2	--	--	--	--	2	--	--	--
2019	No Enrollment											
2020	11	--	--	--	--	--	--	--	--	--	--	--
<b>TOTAL</b>	<b>57</b>	<b>25</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>7</b>

\* EAP = Early Acceptance Program (Provisional Acceptance to medical school)

**Challenges to Program’s Success**

The FSTAR program has faced several challenges to its success, including:

- Lack of some academic support services at the home institutions, e.g., tutoring and pre-health advisors;
- Need for more psychosocial support at the home institutions;
- Student undergraduate financial support, e.g., the need to work full-time to pursue a college education;
- Data management, advising, and tracking software; and
- Access to and scheduling of STEM courses at the home institution.



**Graduate Certificate Program (GCP) in Molecular and Biomedical Sciences Enhances Qualifications of Health Profession Degree Applicants**

The Graduate Certificate Program (GCP) was launched in 2016 and aims to provide academic enhancement and professional development for its enrollees. In addition to strengthening biomedical knowledge, the program also focuses on enhancing professional skills. The goal is to improve the enrollee’s qualification for a successful application to medical school or other health-related professional degree programs.

The GCP program is designed to improve communication and learning skills, as well as time management abilities. The two-semester program includes eight graduate-level courses, mandatory academic advisory meetings, learning specialist advising, and medical school admission counseling to help prepare students for a health professions career.

GCP Metrics

Year of Program	# of Students	# of Certificates awarded	# in medical school Class of 2021	# in medical school Class of 2022	# in medical school Class of 2023	# in medical school Class of 2024	Total # of students in medical school	% of cohort earning certificate who are in medical school **
2017	48	42	22	13	1	--	36	86%
2018	51	33	--	15	10	3	28	85%
2019	56	42	--	--	21	9	30	72%
2020	61	33	--	--	--	19	19*	56%
<b>TOTAL</b>	<b>216</b>	<b>150</b>	<b>22</b>	<b>28</b>	<b>32</b>	<b>31</b>	<b>113</b>	<b>75%</b>

\* Many applicants in current cycle

\*\*Not all students applied/will apply to medical school

Challenges to Program’s Success

The GCP is still young and is facing its share of challenges. Currently, there are financial constraints to the program, including no scholarships or federal loans available to support tuition. The program is experiencing a 10 percent attrition after the first semester. We are also trying to develop a means for post-program tracking and follow-up of students who have enrolled.

**Graduate Certificate in Molecular and Biomedical Sciences**

Strengthen your biomedical knowledge  
Enhance your professionalism skills  
Improve your qualifications for application to medical school and other health professional degree programs

**Courses\***

- Medical Cell Biology and Biochemistry
- Medical Genetics
- Medical Microbiology and Immunology
- Medical Molecular Biology
- Medical Physiology
- Pathology and Medical Histology
- Professional Skills in Medical Sciences I and II

\*Courses taught by medical school faculty (A rigorous curriculum similar to first year medical school). Small class cohort based program. Lectures, small group work, large group active learning sessions. State-of-the-art facilities and technology.

**Program Requirements**

- Bachelor's degree completed prior to matriculation
- U.S. citizenship or U.S. permanent resident status
- All MCJ prerequisite courses completed

**FIU Herbert Wertheim College of Medicine**  
Graduate Certificate in Molecular and Biomedical Sciences

11200 SW 8th Street, AHC2, 605, Miami, FL 33199  
305-348-3054 | biomedcert@fiu.edu | go.fiu.edu/GCPMB

### RESULTS/OUTCOMES

- The success of the FSTAR program suggests that students will pursue careers in health professions if provided the mentoring, skills, and opportunities. One measure of success was completion of each academic year toward their degree. Out of the 57 students, 25 have completed their BS degree and 32 are still actively enrolled in undergraduate programs. Of the 25 that graduated with a BS, six have matriculated to medical school and seven are currently in other STEM field programs moving toward achieving advanced degrees.
- For the GCP program, 75 percent of those who earned a certificate were accepted and enrolled in medical school. Students acquired new learning strategies, as well as time management and goal setting skills. Some made

the determination to consider other health professions instead of medicine, including dentistry, pharmacy, public health, mental counseling, and the business of healthcare. Additional outcomes include:

- > Enhanced performance on MCAT exams;
- > Academic success in M1 and M2 at HWCOM and at other medical schools; and
- > Increased leadership roles in the Medical Student Council, student interest groups, and other medical school committees and programs.

### FOR MORE INFORMATION AND RELATED MATERIALS ABOUT THE FIU UNDERGRADUATE AND GRADUATE STUDENT ENRICHMENT PROGRAMS

- <https://medicine.fiu.edu/academics/degrees-and-programs/certificate-in-molecular-and-biomedical-sciences/index.html>
- <https://medicine.fiu.edu/academics/degrees-and-programs/doctor-of-medicine/pre-med-programs/f-star/index.html>

#### AUTHORS:

**Carolyn D. Runowicz, MD**  
*Executive Associate Dean of  
Academic Affairs*  
HWCOM FIU

**Barbara J. Rodriguez, EdD**  
*Director of Accreditation*  
HWCOM FIU

**Barbra A. Roller, PhD**  
*Assistant Dean of Academic Affairs*  
HWCOM FIU

**Marsha Stevens, MPH**  
*Senior Program Coordinator*  
HWCOM FIU

**Adrian L. Jones, JD**  
*Interim Executive Associate Dean  
of Student Affairs*  
HWCOM FIU

**Cheryl Holder, MD**  
*Interim Associate Dean for Diversity,  
Equity, Inclusivity and Community  
Initiatives*  
HWCOM FIU

**Tracey A. Weiler, PhD**  
*Academic Director for Graduate  
Certificate Program*  
HWCOM FIU



Association of Academic Health Centers®  
*Leading institutions that serve society*

1400 Sixteenth Street, NW, Suite 720  
Washington, DC 20036  
202.265.9600

[aahcdc.org](http://aahcdc.org)

The AAHC Case Studies in *Connecting Pipelines to Pathways for Health Equity* are an initiative of the AAHC Chief Academic Officers executive leadership group in partnership with the AAHC Sullivan Alliance.