

# Case Comprehensive Cancer Center American Cancer Society Diversity in Cancer Research Postbaccalaureate Program

## Program Requirements

The ACS-Postbaccalaureate Program builds core competencies needed for success in cancer-intensive PhD or MD/PhD training programs, including foundational cell, molecular, and cancer biology; written and oral communication; clinical experiences; networking; and cancer disparities.

The program consists of **15 credits of required and elective courses over two academic years**, as well as several longitudinal training activities. Successful completion of the program requires:

1. A final cumulative GPA of 3.0 or better for coursework
2. Completion and revision of an Individual Development Plan (IDP)
3. Completion of laboratory rotations and mentored research (as measured by at least 30 hours/week of research activity in the mentor's laboratory)
4. 75% or better attendance at required longitudinal activities (monthly meetings, seminars, Case CCC retreats)
5. Participation at least once as a reviewer in the Trainee Dream Experiment Award Competition
6. Travel to at least one national conference
7. A written report of project summarizing laboratory notebooks
8. A final presentation of research at the end-of-program symposium

## Coursework

### Required Courses

IBMS 453, Cell Biology I (3 credits)  
IBMS 455, Molecular Biology I (3 credits)  
IBMS 500, Responsible Conduct of Research (1 credit)  
PHRM 520, Cellular and Molecular Hallmarks of Cancer (3 credits)  
PHRM 526, Grant Writing Tutorial (1 credit)  
IBMS 450, Biostatistics to Enhance Rigor and Reproducibility (1 credit)  
Elective (3 Credits)

### Potential Elective Courses (can be taken Fall 2025 or Spring 2026 depending on course availability)

BIOC 434, Structural and Computational Biology (3 credits)  
BIOC 445, Metabolic Dysregulation and Human Disease (3 credits)  
BIOC 453, Biochemical Pathways in Cancer Therapeutics (3 credits)  
BIOC 460, Advanced Technologies for Cancer Research (3 credits)  
PHRM 409, Principles of Pharmacology (3 credits)  
PQHS 411, Introduction to Health Behavior (3 credits)  
PQHS 416, Computing in Biomedical Health Informatics (3 credits)  
PQHS 440, Introduction to Population Health (3 credits)  
PQHS 451, A Data-Driven Introduction to Genomics and Human Health (3 credits)

## Individual Development Plans

The ACS-Postbaccalaureate Program Steering Committee will work with each enrolled scholar to develop an initial Individual Development Plan (IDP). The formation, implementation, and revision of the IDP requires a

series of iterative and interactive steps to be conducted by the scholar and the Steering Committee. The IDP is prepared by the scholar, highlighting research goals and needs, and will be discussed with the Steering Committee to establish anticipated outcomes, monitoring plans, and evaluation. The initial IDP will be revisited and revised as necessary with the scholar's research mentor and with the Steering Committee every six months.

### **Laboratory Training, Rotations, and Mentored Research**

During the first week (prior to the start of the fall semester), scholars will attend technology-specific lectures and tour the 13 Case CCC Shared Resources. They will also complete in-person safety training with CWRU Environmental Health and Safety prior to entering a lab and receive on-going lab-specific safety training. Annual retraining is required. To decide which cancer focus and environment is most beneficial to their career development, scholars will rotate in two of the program mentors' labs for two-weeks each. A third rotation is possible, if needed. Once scholars choose a primary mentor, they will revise their IDPs with the help of the mentor. From this point onward, scholars will conduct intensive mentored cancer research with their primary mentor. Scholars will be integral to the development of their projects, working with their mentors to provide input, where possible, rather than simply being assigned a set of experiments. Having a voice in project development is critical to developing a deep understanding of the project. Scholars will meet with their primary mentor at least weekly, attend lab functions (meetings, journal clubs), maintain a lab notebook, and function as a graduate student, including attending seminars and other student functions.

### **Longitudinal Training**

Scholars will receive extensive career development training from their mentors, labs, and the Steering Committee. In addition, scholars will participate in a monthly program meeting with Steering Committee members. Scholars will report on their progress, present journal articles, practice local and national presentations, and have opportunities to engage in discussions with UR faculty from the Case CCC and its partners Cleveland Clinic and University Hospitals, where they will share their own career development stories. Scholars will also attend weekly Department or Case CCC Seminars to learn from nationally renowned invited experts. For Case CCC seminars, scholars will be invited to attend trainee lunch sessions with national speakers to learn about career development and build their professional network. In addition, scholars will attend three annual cancer-specific forums offered by the Case CCC: the Cancer Disparities Symposium in March, the Bench to Bedside Retreat in June, and the Scientific Retreat in July. Trainees at all levels are active participants in the retreats, which expose them to the workings of a large comprehensive cancer center and stimulates interactions with colleagues in diverse areas of cancer research. Trainees present short-talks and posters and attend a lunch session with retreat keynote speakers to discuss career trajectories. They also attend career enrichment seminars with varied topics such as the preparation of fellowship applications. In addition, scholars will shadow physician-scientists to expose them to the clinical care of cancer patients.

### **Communication and Application Coaching**

Scholars will build communication skills through lab journal clubs, seminar presentations, and the grant writing course mentioned above. In addition, scholars will serve as reviewers for the Trainee Dream Experiment Award Competition, in which the Case CCC convenes an NIH-style study section consisting of experienced faculty and trainees to review applications. This is a valuable experience for trainees to learn about the review process while functioning as a reviewer and this helps them improve their own grant applications. Our expectation is that scholars will develop a keen sense of how to present ideas in the context of a formal grant and have a skillset for earning a funded fellowship soon after matriculating into a PhD or MD/PhD program. Scholars will also receive coaching for applying to graduate school and/or MD/PhD training programs. Mentors and the Steering Committee will provide assistance and feedback for personal statements and will conduct mock interviews. The Case CCC will provide funding for each scholar to take the Kaplan preparatory courses, and we

will conduct practice tests, assessments, and feedback. Directors of the CWRU BSTP and MSTP will also meet with Scholars to discuss successful application strategies.

### Career Development Networking

Each year, scholars will attend and present their research at a national conference such as the Annual Biomedical Research Conference for Minoritized Scientists or the American Association for Cancer Research, providing opportunities for networking and practicing presentation skills. All scholars will be invited to join the CWRU School of Medicine Minority Graduate Student Organization and Biomedical Graduate Student Organization, providing a voice in training at CWRU and peer leadership opportunities.

### Final Report and Presentation

Prior to the end of the second year of training, scholars will be required to generate a 3-5 page summary of their research project and laboratory notebooks. The report will include a background and rationale for the project, significance and innovation of the project, the overall hypothesis that was tested, an explanation of methods used, a summary of the results obtained, and a conclusion. This laboratory notebook and project summary will be reviewed by the scholar’s mentor and the Steering Committee. A final symposium/celebration will be conducted at the end of the program. Scholars will be required to provide a 20-minute presentation of their projects and future plans to their peers, program leadership and mentors, and members of the Case CCC. Scholars will also answer questions from the audience about their projects, training, and future plans.

### Sample Plan of Study

TIMELINE OF ACTIVITIES		required during this time												may occur within this time															
Activity		YR1 SEM1				YR1 SEM2				YR1 Summer				YR2 SEM1				YR2 SEM2				YR2 Summer							
Orientation																													
IDP																													
Lab Rotations																													
Mentored Research																													
Coursework		IBMS453 (3)				IBMS500 (1)								PHRM 526 (1)															
		IBMS455 (3)				PHRM520 (3)								IBMS450 (1)															
Elective Course (3)																													
Monthly Program Meeting		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Case CCC/Dept. Seminars		4	4	4	4	4	4	4	4					4	4	4	4	4	4	4	4								
Case CCC Retreats																													
Physician Shadowing																													
Fellowship Writing																													
Grad School Application																													
National Conferences																													

### Year 1 (Academic Year 2024-2025)

#### Week 1 (prior to start of fall classes)

- Case CCC Bootcamp (tour of Shared Resources)
- EHS safety training
- Develop IDP with Steering Committee

#### Fall 2024

- Laboratory rotations (2-3 two-week rotations to select mentor)
- Mentored research in laboratory

- **IBMS 453, Cell Biology I (3 credits)\***
- **IBMS 455, Molecular Biology I (3 credits)\***
- Monthly Program Meetings
- Seminar Series (Department or Case CCC)
- Begin fellowship writing

*\*6 credit hours of coursework covered by tuition waiver*

### **Spring 2025**

- Mentored research in laboratory
- **IBMS 500, Responsible Conduct of Research (1 credit)\***
- **PHRM 520, Cellular and Molecular Hallmarks of Cancer (3 credits)\***
- Monthly Program Meetings
- Seminar Series (Department or Case CCC)
- Case CCC Cancer Disparities Symposium
- Fellowship writing
- Kaplan preparatory course

*\*4 credit hours of coursework covered by tuition waiver*

### **Summer 2025**

- Mentored research in laboratory
- Monthly Program Meetings
- Case CCC Bench to Bedside Retreat
- Case CCC Annual Scientific Retreat
- Physician shadowing
- Grad school application preparation

## **Year 2 (Academic Year 2025-2026)**

### **Fall 2025**

- Mentored research in laboratory
- **PHRM 526, Grant Writing Tutorial (1 credit)\***
- **IBMS 450, Biostatistics to Enhance Rigor and Reproducibility (1 credit)\***
- **Elective (3 Credits)\*** (not required if taken Spring 2026)
- Monthly Program Meetings
- Seminar Series (Department or Case CCC)
- Finish fellowship writing
- Grad school application

*\*Up to 5 credit hours of coursework, if elective is taken this semester, covered by tuition waiver*

### **Spring 2026**

- Mentored research in laboratory
- **Elective (3 Credits)\*** (not required if taken Fall 2025)
- Monthly Program Meetings
- Seminar Series (Department or Case CCC)
- Case CCC Cancer Disparities Symposium
- Grad school interview preparation
- Finish grad school application
- Final report (notebook summary)

- Final presentation at End of Program Symposium

*\*Up to 3 credit hours of coursework, if elective is taken this semester, covered by tuition waiver*

### **Summer 2026**

Fellows that remain on campus may continue to participate in:

- Mentored research in laboratory
- Monthly Program Meetings
- Case CCC Bench to Bedside Retreat
- Case CCC Annual Scientific Retreat
- Physician shadowing