

## MISSION

The *central goal* of our National Institutes of Health funded Quantitative and Chemical Biology Training Program (QCB TP) is to build and foster an interdisciplinary graduate training environment which promotes a “convergence of fields” that transcends departmental boundaries. In short, we seek to train a diverse cohort of students from the chemical, physical and life sciences to address problems central to understanding human health and disease.

## INSTRUMENTATION

QCB TP Trainers and students enjoy access to a collection of sophisticated instrumentation including a state-of-the-art nanofabrication and characterization facility, a 300 keV cryo-transmission electron microscope, 800 and 600 MHz NMR spectrometers with cryoprobe systems and a modern x-ray crystallography core equipped with a sample preparation robot. In addition, the IUB Light Microscopy Imaging Center (LMIC) houses a super-resolution DeltaVision|OMX light microscope, one of the few sited in the country.



Andrey Malyutin  
Former QCB Trainee

This instrumentation coupled with myriad high resolution mass spectrometers used for proteomics, glycomics and metabolomics housed in the Laboratory for Biological Mass Spectrometry (LBMS) as part of a Waters Corporation Center for Innovation, make the Bloomington campus an outstanding venue in which to pursue interdisciplinary graduate training in QCB.

## Interested?

Submit your application for admission to a degree-granting program in Biology, Physics (biophysics), Biochemistry, Chemistry, or Medical Sciences, and click the QCB interest box on the formal application form. Alternately, contact any member of the *Steering Committee* or the *Recruitment Committee* for additional information.

### Steering Committee

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### Recruitment Committee

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Bogdan Dragnea, Chemistry

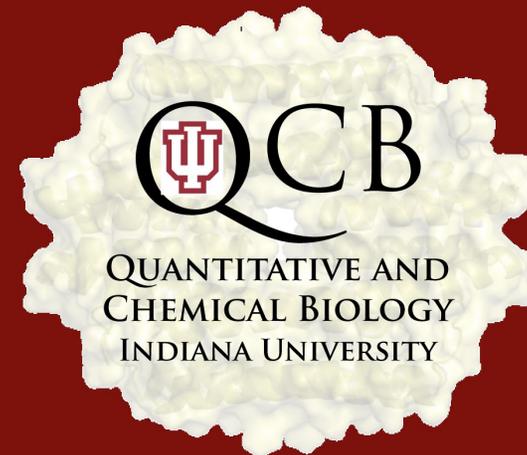
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FULFILLING *the* PROMISE



QUANTITATIVE AND  
CHEMICAL BIOLOGY  
INDIANA UNIVERSITY

QUANTITATIVE

VIRUS ASSEMBLY

PHYSICAL BIOLOGY

INFECTIOUS DISEASE

INTERDISCIPLINARY

CHEMICAL BIOLOGY

QCB TRAINING

PROGRAM

INDIANA UNIVERSITY

BLOOMINGTON

## QCB TP AT IU

Major innovations in biomedical science will become increasingly dependent on scientists trained to understand the chemical and physical logic of biological systems in quantitative terms. The QCB TP provides interdisciplinary and collaborative training opportunities for pre-doctoral students in active enrollment of a participating graduate degree program.



Lucy Sanchez QCB trainee—Yu Lab

To become an active QCB trainee, students must:

- Join a QCB Training Faculty laboratory
- Complete the QCB curricular requirements

To learn more about the research of QCB Trainer laboratories, please visit:

[www.chem.indiana.edu/qcb/TrainingFaculty.asp](http://www.chem.indiana.edu/qcb/TrainingFaculty.asp)

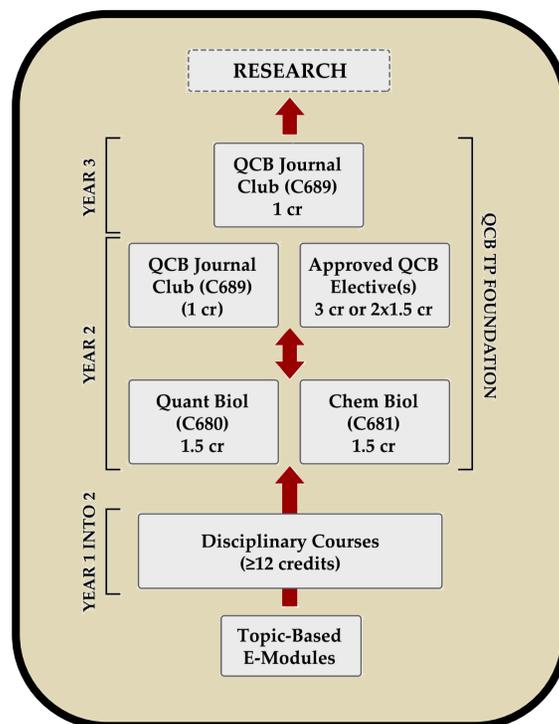
## QCB CURRICULUM

The QCB TP is designed to attract students with undergraduate degrees in chemistry, physics, biology, biochemistry, or biophysics who seek to develop and utilize leading-edge technologies to explore biological problems important in human health and disease. The overriding principle that governs development of the curriculum is that it is value-added on a traditional core disciplinary program of study. Prospective trainees are admitted to Graduate School in one of five programs and earn their Ph.D. degrees in that program. The following five programs participate in the QCB TP: Chemistry, Physics, Biology, Biochemistry and Medical Sciences.

Web: [www.chem.indiana.edu/qcb](http://www.chem.indiana.edu/qcb)

## QCB REQUIREMENTS

The QCB TP is schematized in the figure below and is managed by the Curriculum Committee. It emphasizes the centrality of QCB TP curricular requirements on what is otherwise a standard, distinct disciplinary focus. The two core didactic courses are CHEM C680, Introduction to Quantitative Biology and Measurement and CHEM C681, Introduction to Chemical Biology I. These courses are designed to arm students with a fundamental "language" or "tool-box" of chemical and physical biology. All QCB TP students also register for CHEM C689, QCB Journal Club in the second and third years, with the remaining curricular requirements (3 cr) satisfied by any number of a large list of electives outside of disciplinary courses.



Phone: 812-855-9043

## QCB FELLOWSHIPS

The QCB TP Graduate Training Fellowships are competitively awarded to second- and third-year students working on projects at the chemistry-biology interface and are supported by a combination of funding provided by the National Institutes of Health Research Training grant as a National Research Service Award (NRSA), the College of Arts and Sciences and the University Graduate School.

Students are nominated for QCB TP Graduate Fellowships by their advisor and QCB Trainer and are selected on the basis of scholarly merit by the QCB TP Steering Committee. The QCB TP is committed to diversity equity with respect to gender, race and ethnicity, sexual orientation and physical disabilities, and encourages applications from all meritorious students.

## QCB ACTIVITIES

Extracurricular activities associated with the QCB Training Program include the Watanabe Symposium in Chemical Biology, Monthly QCB Evenings, QCB Research Meetings and the QCB Seminar Series.



Program Director Giedroc conducts a QCB Research Meeting.

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