Doctor of Philosophy Program in Bioinformatics and Systems Biology (International Program)

Ph.D. (Bioinformatics and Systems Biology)

Philosophy of the Program:

The Doctor of Philosophy Program in Bioinformatics and Systems Biology is designed for students who desire focused training in the elements of biology, computer science, and information technology needed for a successful career in the exciting new discipline of Bioinformatics & Systems Biology. Students in our program will receive comprehensive training in omics analysis, database design and management, software engineering and programming (including web-based development), simulation techniques and modeling, and data integration. Each student will apply their skills to a practical project, where they will design and implement a solution to a real-world problem under the guidance of an experienced mentor in industry or academia.

Applicant Qualifications

1. Applicants must complete Bachelor's Degree with GPA not less than 3.25 or Master's Degree with GPA not less than 3.00 out of scale of 4.00 (In case the applicant graduates from institutions that use the other grading system, it shall be at the discretion of the program committee) in science, engineering Computer Science, Medicine, Pharmacy or other related fields. For those who completed other programs, this shall be at the discretion of the program committee in considering the applicants on publications, experiences at least 1 year in bioinformatics or system biology.
2. The qualifications of applicants for admission to all study plans are in accordance with the regulations of the King Mongkut's University of Technology Thonburi on Graduate Studies, B.E.2562 (2019)
3. Applicants must submit the English Proficiency Test Score as part of their application according to the KMUTT announcement on the English Language Requirement for Doctoral Degree.

Professions after graduation

1. Academics/Lecturers in in Bioinformatics and Systems Biology, Computer, Bioscience, and medical science in institutes, government and industrial sectors
2. Analysts and product designers in value-added Bioinformatics and Systems Biology
3. Programmer in Bioinformatics and Systems Biology
4. Software Manager in Bioinformatics and Systems Biology
5. Project Analysts in Bioinformatics and Systems Biology

Curriculum

Plan 1.1 for student with Master degree	48	Credits
Plan 2.1 for student with Master degree	48	Credits
Plan 2.2 for student with Bachelor degree	72	Credits

Curriculum Components

Plan 1.1 for student with Master degree

- Major Course 3 Credits
- Dissertation 48 Credits

Plan 2.1 for student with Master degree

- Major Course 3 Credits
- Elective Course 9 Credits
- Dissertation 36 Credits

Plan 2.2 for student with Bachelor degree

- Major Course 6 Credits
- Elective Course 18 Credits
- Dissertation 48 Credits

COURSE STRUCTURE

Plan 1.1 for student with Master degree

Foundation Course (S/U)

BIF 510 Microbiology and Biochemistry	3 (3-0-9)
BIF 511 Programming Fundamentals	3 (2-2-9)
BIF 521 Data Structures and Algorithms	3 (3-0-9)

First Year/ First Semester	**Credits**
BIF 794 Seminar in Bioinformatics and Systems Biology IV	1 (0-2-3) (S/U)
BIF 790 Dissertation	8 (0-32-64)
Total	9 (0-34-67)

First Year/ Second Semester	**Credits**
BIF 796 Seminar in Bioinformatics and Systems Biology V	1 (0-2-3) (S/U)
BIF 790 Dissertation	8 (0-32-64)
Total	9 (0-34-67)

Second Year/ First Semester	Credits
BIF 798 Seminar in Bioinformatics and Systems Biology VI	1 (0-2-3) (S/U)
BIF 790 Dissertation	8 (0-32-64)
Total	9 (0-34-67)
Second Year/ Second Semester	**Credits**
BIF 790 Dissertation	8 (0-32-64)
Total	8 (0-32-64)
Third Year/ First Semester	**Credits**
BIF 790 Dissertation	8 (0-32-64)
Total	8 (0-32-64)
Third Year/ Second Semester	**Credits**
BIF 790 Dissertation	8 (0-32-64)
Total	8 (0-32-64)

Plan 2.1 for student with Master degree

First Year/ First Semester	Credits
BIF 794 Seminar in Bioinformatics and Systems Biology IV	1 (0-2-3) (S/U)
BIF xxx Elective	3 (3-0-9)
BIF xxx Elective	3 (3-0-9)
BIF xxx Elective	3 (3-0-9)
Total	10 (9-2-30)

First Year/ Second Semester	Credits
BIF 796 Seminar in Bioinformatics and Systems Biology V	1 (0-2-3) (S/U)
BIF 791 Dissertation	6 (0-24-48)
Total	7 (0-26-51)
Second Year/ First Semester	**Credits**
BIF 798 Seminar in Bioinformatics and Systems Biology VI	1 (0-2-3) (S/U)
BIF 791 Dissertation	9 (0-36-72)
Total	10 (0-38-75)
Second Year/ Second Semester	**Credits**
BIF 791 Dissertation	9 (0-36-72)
Total	9 (0-36-72)

Third Year/ First Semester	Credits
BIF 791 Dissertation	9 (0-36-72)
Total	9 (0-36-72)
Third Year/ Second Semester	**Credits**
BIF 791 Dissertation	3 (0-12-24)
Total	3 (0-12-24)

Plan 2.2 for student with Bachelor degree

Foundation Course (S/U)	
BIF 510 Microbiology and Biochemistry	3 (3-0-9)
BIF 511 Programming Fundamentals	3 (2-2-9)
BIF 521 Data Structures and Algorithms	3 (3-0-9)
First Year/ First Semester	**Credits**
BIF 692 Seminar in Bioinformatics and Systems Biology I	1 (0-2-3)
BIF xxx Elective 1	3 (3-0-9)
BIF xxx Elective 2	3 (3-0-9)
BIF xxx Elective 3	3 (3-0-9)
รวม	10 (9-2-30)
First Year/ Second Semester	**Credits**
BIF 694 Seminar in Bioinformatics and Systems Biology II	1 (0-2-3)
BIF xxx Elective 4	3 (3-0-9)
BIF xxx Elective 5	3 (3-0-9)
BIF xxx Elective 6	3 (3-0-9)
รวม	10 (9-2-30)
Second Year/ First Semester	**Credits**
BIF 792 Seminar in Bioinformatics and Systems Biology III	1 (0-2-3)
BIF 790 Dissertation	6 (0-24-48)
รวม	7 (0-26-51)
Second Year/ Second Semester	**Credits**
BIF 794 Seminar in Bioinformatics and Systems Biology IV	1 (0-2-3)
BIF 790 Dissertation	6 (0-24-48)
รวม	7 (0-26-51)

Third Year/ First Semester	Credits
BIF 796 Seminar in Bioinformatics and Systems Biology V	1 (0-2-3)
BIF 790 Dissertation	6 (0-24-48)
รวม	7 (0-26-51)
Third Year/ Second Semester	**Credits**
BIF 798 Seminar in Bioinformatics and Systems Biology VI	1 (0-2-3)
BIF 790 Dissertation	6 (0-24-48)
รวม	7 (0-26-51)
Forth Year/ First Semester	**Credits**
BIF 790 Dissertation	6 (0-24-48)
Total	6 (0-24-48)
Forth Year/ Second Semester	**Credits**
BIF 790 Dissertation	6 (0-24-48)
Total	6 (0-24-48)
Fifth Year/ First Semester	**Credits**
BIF 790 Dissertation	6 (0-24-48)
Total	6 (0-24-48)
Fifth Year/ Second Semester	**Credits**
BIF 790 Dissertation	6 (0-24-48)
Total	6 (0-24-48)