

National Central University
Department of Biomedical Sciences and Engineering
Institute of Systems Biology and Bioinformatics
By-law of the Regulations and Procedures for Students Pursuing Doctoral or Master Degree
(Applies to new students starting from 2020)

Passed by the Institute Staff Meeting on June 30, 2009
Passed by the Institute Staff Meeting on June 08, 2011
Passed by the Institute Staff Meeting on May 29, 2012
Passed by the Institute Staff Meeting on June 17, 2015
Recorded and Ratified by the Academic Affairs Meeting on October 07, 2015
Passed by the College Staff Meeting on May 20, 2016
Passed by the Department Staff Meeting on February 22, 2017
Passed by the Department Staff Meeting on May 11, 2017
Passed by the College Staff Meeting on March 09, 2018
Passed by the Department Staff Meeting on February 27, 2020

Recorded and Ratified by the Academic Affairs Meeting on October 14, 2009
Recorded and Ratified by the Academic Affairs Meeting on October 12, 2011
Recorded and Ratified by the Academic Affairs Meeting on June 20, 2012
Passed by the Department Staff Meeting on August 26, 2015
Passed by the Department Staff Meeting on May 18, 2016
Recorded and Ratified by the Academic Affairs Meeting on June 15, 2016
Passed by the College Staff Meeting on March 03, 2017
Passed by the Department Staff Meeting on February 22, 2018
Recorded and Ratified by the Academic Affairs Meeting on June 20, 2018
Passed by the College Staff Meeting on March 05, 2020
Recorded and Ratified by the Academic Affairs Meeting on June 17, 2020

Article 1 This by-law is established in accordance with the “National Central University Regulations on the Degree Examinations for Postgraduate Students”.

Article 2 Master’s Program Course Requirements

2.1 Master's students must complete a total of **24 credits** to graduate.

2.2 The **compulsory courses** include:

- (1) SB6004-Seminar I
- (2) SB6012-Seminar II
- (3) SB7058-Biostatistics
- (4) SB6001-Computational Biology and Bioinformatics or SB7067-Molecular Genomics (refer to note 1)

2.3 The **required elective courses**:

- (1) SB7029-Advanced Journal Review I
- (2) SB7038-Advanced Journal Review II

2.4 The elective courses: Any courses that are not officially recognized by this program must be approved by the Academic Affairs Committee to be included in the graduation credits. (*Details are available in the attached table*)

Article 3 Doctoral (Ph.D.) Program Course Requirements

3.1 Doctoral candidates must complete a total of **18 credits** to graduate. Students who are admitted into a doctoral program through direct admission must complete a minimum of 34 credits (including at least 18 doctoral program credits).

3.2 The **compulsory courses** include:

- (1) SB6004-Seminar I
- (2) SB6012-Seminar II
- (3) SB7029-Advanced Journal Review I
- (4) SB7038-Advanced Journal Review II

3.3 In addition to the above compulsory courses, doctoral candidates are required to **complete and pass courses offered by the department** (courses with course codes starting with BE, TM, SB), totaling **at least 6 credits**.

3.4 The elective courses: Any courses that are not officially recognized by this program must be approved by the Academic Affairs Committee to be included in the graduation credits. (*Details are available in the attached table*)

Article 4 Course Credit Waiver will be processed in accordance with the “Regulations for Credit Waiver for Graduate Students in the Institute of Systems Biology and Bioinformatics”.

Article 5 Qualification Determination for Thesis Advisors and Degree Examination Committee Members

- 5.1 Thesis Advisor: Each student must select **one full-time faculty member of the Institute of Systems Biology and Bioinformatics** as their thesis advisor.
- 5.2 Co-Advisor: Each student is required, with the approval of the thesis advisor, to choose another full-time faculty member (tenure-track or equivalent) or adjunct faculty member as an co-advisor. With the advisor's approval, an external or off-campus faculty member can also serve as a co-advisor.
- 5.3 Doctoral Degree Examination Committee: the qualifications of the members are determined based on the following criteria which include specialized expertise, capability tracks, and technical skills related to the proposed doctoral candidate's thesis, as follows:
- (1) For those eligible for **direct appointment** to serve on the Doctoral Thesis Examination Committee, the following criteria must be met:
 - i. Current or emeritus distinguished professors.
 - ii. Current or former academicians or researchers of the Academia Sinica.
 - (2) For individuals falling into the following categories, their qualifications will be reviewed by the department head considering:
 - i. Current or former associate professors or researchers of the Academia Sinica with significant academic achievements.
 - ii. Holders of a doctoral degree (Ph.D.) with significant academic achievements.
 - iii. Possessed particular disciplines or skills with significant academic or professional achievements.
- 5.4 Master's Degree Examination Committee: the qualifications of the members are determined based on the following criteria which include specialized expertise, capability tracks, and technical skills related to the proposed Master's student thesis, as follows:
- (1) For those eligible for **direct appointment** to serve on the Master's Degree Thesis Examination Committee, the following criteria must be met:
 - i. Emeritus distinguished professors, associate professors, or assistant professors.
 - ii. Current or former academicians, associate researchers, or assistant researchers of Academia Sinica.
 - (2) For individuals falling into the following categories, their qualifications will be reviewed by the department head considering:
 - i. Holders of a doctoral degree (Ph.D.) with significant academic achievements.
 - ii. Possessed particular disciplines or skills with significant academic or professional achievements.
- 5.5 The qualifications for student's thesis advisors and co-advisors are determined in accordance with the university's National Central University Study Regulations" and the National Central University Regulations on the Degree Examinations for Postgraduate Students.

Article 6 Thesis defense

- 6.1 Students must comply with **all the designated courses** and **total credits** that are required by this respective program.
- 6.2 Students must **have completed the initial draft of their thesis**.
- 6.3 Doctoral (Ph.D.) candidates must pass the doctoral qualifying examination at least one year before thesis defense.
- 6.4 Doctoral (Ph.D.) candidates must have had **two (2) articles accepted**, with one being an SCI-indexed article (science citation index), in which the candidates must be the first author or co-first author of their SCI publication together with their thesis advisors or their thesis advisor be the corresponding author. They must also complete the "Doctoral Degree Graduation Application Form" before applying for the thesis defense.
- 6.5 Oral thesis defenses and other graduation-related matters shall be conducted in accordance

with the relevant regulations of National Central University.

Article 7 Thesis defense for working professionals studying at National Central University.

Doctoral (Ph.D.) candidates in this program who participate in the Ministry of Education's "**Cultivating Doctoral (Ph.D.) Research Talent through Industry-Academia Collaboration Program**" or whose industry-research collaboration projects have been approved by the Academic Committee, may apply for graduation through the "Industry-Academia Cooperation" method. The procedure is as follows:

- 7.1 Apart from the thesis advisor, students should select another person from a company or cooperating institution as a co-advisor to complete the research and development work.
- 7.2 Doctoral (Ph.D.) candidates must meet the course requirements of this program.
- 7.3 Doctoral (Ph.D.) candidates must have completed the initial draft of their thesis.
- 7.4 Doctoral (Ph.D.) candidates must pass the qualifying examination within one year before the thesis defense.
- 7.5 Graduation can be achieved through either one of the following conditions:
 - i. Candidates must have one published article in an SCI-indexed journal article related to the research topic accepted, and either the candidates or the advisor must be the first author (including equal contribution). They must also complete the "Doctoral Degree Graduation Application Form" before applying for the thesis defense.
 - ii. Graduation can be achieved through non-SCI journal article publication formats by demonstrating other forms of honor or achievement (satisfying any one of the following three criteria), subject to research results review:
 - a. Patents: Having obtained at least one domestic or foreign invention patent. The obtained domestic and foreign patent rights must be applied for with the National Central University as the patent holder, and the candidate must be one of the inventors.
 - b. Technology Transfer: A technology transfer amount of at least 50,000 NT dollars is the principle. In special cases, approval may be granted by the institutional staff meeting after review.
 - c. Other special contributions or research results in industry-academia collaboration, are subject to approval by the institutional staff meeting.
- 7.6 Thesis oral defense and other relevant issues under this criteria will be in accordance with "National Central University Study Regulations".

Article 8 Doctoral (Ph.D.) Qualifying Examination is conducted in accordance with the 'Regulations for the Qualifying Examination of the Doctoral Program in Systems Biology and Bioinformatics'.

Article 9 Any matters not covered by these regulations shall be handled in accordance with the relevant regulations of the Ministry of Education and National Central University.

Article 10 These by-laws are implemented upon approval by the Department Staff Meeting and recorded by the Academic Affairs Committee for further amendments if any. These by-laws will be selectively applied to students who were enrolled before the implementation.

Note 1: New students will be tested on both Computational Biology and Bioinformatics (SB6001), as well as Molecular Genomics (SB7067). Students who pass the tests may choose one of these two required courses. Those who do not pass the tests are required to take both courses.

Institute of Systems Biology and Bioinformatics
By-law of the Regulations and Procedures for Students Pursuing Master's Degree
Credits table

A. The compulsory courses:

Course Name	Credits
Seminar I (SB6004)	2
Seminar II (SB6012)	2
Biostatistics (SB7058)	3
Computational Biology and Bioinformatics (SB6001) or Molecular Genomics (SB7067)*	3 (each)

(*see Note 1)

B. The required elective courses:

Course Name	Credits
Advanced Journal Review I (SB7029)	2
Advanced Journal Review II (SB7038)	2

Institute of Systems Biology and Bioinformatics
By-law of the Regulations and Procedures for Students Pursuing Doctoral (Ph.D.) Degree
Credits table

A. The compulsory courses:

Course Name	Credits
Seminar I (SB6004)	2
Seminar II (SB6012)	2
Advanced Journal Review I (SB7029)	2
Advanced Journal Review II (SB7038)	2

B. The required elective courses:

Students must pass **at least 6 credits** of the offered courses by the department courses with course codes starting with BE, TM, SB.