

National Chiao Tung University
Department of Transportation & Logistics Management
Academic Regulations for Doctoral Program

Stipulated at the 8th Academic Affairs Meeting in Academic Year 2012 (10 April 2013)
Stipulated at the 9th Academic Affairs Meeting in Academic Year 2012 (5 May 2013)
Amended at the 9th Academic Affairs Meeting in Academic Year 2013 (16 April 2014)
Amended at the 6th Academic Affairs Meeting in Academic Year 2015 (04 March 2016)
Amended at the 7th Academic Affairs Meeting in Academic Year 2015 (01 April 2016)
Amended at the 7th Academic Affairs Meeting in Academic Year 2017 (29 March 2018)

Article 1. The Regulation is stipulated in accordance with the "Degree Conferment Law and Code of Practice for Degree Conferment Law" of the Ministry of Education and the "National Chiao Tung University Regulations for Master and Doctoral Degrees Conferment" in order to supervise its students of the doctoral program of Department of Transportation & Logistics Management (referred to as TLM hereunder) of NCTU and to maintain the academic quality of doctoral program.

Article 2. The Ph.D. program of TLM enrolls full-time and part-time students. They may enter TLM through the Recommendation-Selection Admission Program or examination.

Article 3. Students having graduated from domestic public or private universities, colleges, or institutes registered in the Ministry of Education, or overseas universities, colleges, or institutes recognized by the Ministry of Education, and having acquired the master degree or the equivalent education level, can enter the Ph.D. program of TLM through the Recommendation-Selection Admission Program or admission examination of NCTU.

Article 4. Undergraduate students of NCTU graduating in the current year, or master students having studied in NCTU for one academic year, may apply to TLM for the admission to the doctoral program in accordance with "National Chiao Tung University Regulations of Admittance to Doctoral Program from Master's Program." The application should be examined by all full-time teachers of TLM in accordance with "National Chiao Tung University Department of Transportation & Logistics Management Regulations of Admittance to Doctoral Program Directly," and be submitted to the Committee of Departmental Affairs and NCTU for approval.

Article 5. Ph.D. students should select one course advisor according to their research interest and direction for assisting course selection.

Article 6. A Ph.D. student should select a professor as his/her advisor before the end of the midterm exam in the 3rd semester after admission. When the advisor is selected, the student should fill out the "Ph.D. Dissertation Advisor Agreement." The invitation of advisor should be reported to the office of the department and submitted to the Administrator Meeting of the College of Management for approval. The dissertation examination should be applied after at least three academic semesters after the selection of the advisor. If necessary, the advisor can invite an expert in the field as a co-advisor of the Ph.D. student. The co-advisor must be a full-time faculty ranked assistant professor or above in a domestic or

international University recognized by the Ministry of Education. Similarly, for the invitation of co-advisor, the student should fill out the "Ph.D. Dissertation Advisor Agreement", which is reported to the department and the Administrator Meeting of the College of Management for approval. It is noted that a student can only apply for degree defense for at least 2 semesters after the appointment of a co-advisor. A professor of the department can advise at most two new Ph.D. students per year, and at most five Ph.D. students at the same time in an academic year (including suspended student). A professor may advise an additional two Ph.D. students in total if the teacher is awarded a project of Ministry of Science and Technology and publishes more than four ISI papers (including the papers in accepted condition), or if the professor has been awarded the flexible salary research awards of NCTU in the past three years.

Article 7. For the TLM Ph.D. program, the study period of full-time students is limited from two to seven years (the study periods hereon should not include the suspension period). Part-time students may extend the study period for one more year. For students admitted to the Ph.D. program directly as promoted through the master program, the study period is reset since admission and counted according to the regulations of the Ph.D. program.

Article 8. Ph.D. students may select courses offered by TLM or other relevant departments or graduate institutes, and they should complete at least 27 course credits, excluding the courses of Ph.D. seminar, dissertation, and foreign language. The credits should include 18 credits of 2 core courses and 6 courses offered by TLM, and 9 credits of 3 courses of Ph.D. program should be completed and passed (for example, the courses of the "Ph.D. Program" of TLM, and all PhD courses offered by other departments or institutes of College of Management are recognized). The minimum graduate credits of students admitted to Ph.D. program directly are 42 credits (including the credits of master program obtained before the admission to the Ph.D. program). Moreover, Ph.D. students should complete and pass seminar for each semester before graduation. If the Seminar is not selected or failed two times during the study period, the Ph.D. student will be suspended.

Article 9. The core courses of Ph.D. program can be divided into mathematical and statistical categories. Each Ph.D. student should select at least one course from each of the two categories. Students can complete the core courses offered by other departments or graduate institutes if the core courses are not offered by TLM. The core courses are listed as follows:

1. Optimization Techniques category: Linear Programming, Dynamic Programming, Nonlinear Programming, Combinatorial Optimization, Integer Programming, Mathematical Programming, and Heuristics.
2. Statistics category: Stochastic Processes, Mathematical Statistics, Multivariate Analysis and Application and The Application of Econometrics in Transportation Data.

Article 10. Credit waiving

- a. All credits of related core courses, passed during the period of Ph.D. program of all domestic and overseas universities, college, graduate institutes

recognized by the Ministry of Education, may be applied to waive credits. At most half of minimum graduate credits can be waived.

- b. For Ph.D. students admitted to the Ph.D. program of TLM once again after the expiration of the previous study period of Ph.D. program, all credits passed during the previous study period can be applied to be waived, the qualification examination passed can be waived, and the points of published papers obtained during the previous study period can be counted with the second study period. However, the students must apply for graduation after two academic years since admission (suspension is not allowed), and the waving is limited to be once.
- c. Students who study the PhD program in advance during the master's program without having the credits counted into graduation credits of master's program can apply to waive at most 9 credits in PhD program. Students must apply to waive the credits by the end of the 2nd week since the beginning of the semester. Otherwise, the delayed applications need to be examined and approved by the Committee of Departmental Affairs.

Article 11. A Ph.D. student can apply for the Ph.D. candidate qualification examination with the approval of thesis advisor if he or she completes the course credit requirement. The Ph.D. candidate qualification examination is a paper-based written test, and will be conducted once for each semester. The examination committee is formed by the chairperson of TLM Academic Committee, and there are three disciplines in the examination, namely, "Policy and Planning", "Information and Technology", and "Operation and Administration". The exam paper will be emphasized on the technique of quantitative analysis. The method of qualification examination will be announced by the committee one month before the examination. The exam paper result should be kept in the TLM office for reference. In general, the examination of each discipline will be in the form of 6-hour written test. There are two threshold of the grading. The candidate passes the exam if his/her score is 80 or above, and fails if his/her score is below 70. If the candidate fails in two exams out of the three disciplines, he/she is required to discontinue the study. If the candidate fails only one exam, he/she can retake the exam of the same discipline with the current student status, which is limited to once only. If the candidate fails the retake, he/she is required to discontinue the study. If the candidate gets a score between 70-79, it is a conditional pass and the committee member of the discipline will require the candidate to take an assigned course, which does not count towards the graduation credit of the degree. The student should acquire 80 or higher in the assigned course(s); otherwise, he/she will be considered to fail in the discipline(s) and has to apply for a re-test (for one disciplines) or discontinue the study (for two disciplines). The committee should report the examination result to the Committee of Departmental Affairs within 6 weeks after the examination. If a Ph.D. student fails in the qualification test, he or she can apply for a re-test with the current student status, and the re-test should be limited to be once only. Full-time students should pass the Ph.D. candidate qualification examination within three years, and part-time students should pass it within five years (including the period of leave of absence). Otherwise, they will be required to drop out of NCTU. Before applying for the qualifying exam, the candidate should submit the "form of status confirmation" to the department.

Article 12. A Ph.D. student can apply to waive the paper-based Ph.D. candidate qualification examination by means of one published SCI or SSCI paper of JCR (Journal Citation Reports), within 3 years of study for full-time students and 5 years for part-time students (including any suspension period). The calculation of points of the published papers with co-authorship can be referred to the Article 16 (Course Advisor is not counted as a co-author). The above application is subject to the condition that the student pass and meet the score 85 or above in at least one course in each of the three disciplines as well as the Quantitative Analysis discipline. After passing the qualification examination, the Ph.D. student should raise the dissertation proposal within one year (excluding suspension period), and submit it to TLM office for transferring it to the student's "Advice and Review Committee of Ph.D. Dissertation" for reviewing orally after acquiring advisor's approval. For any special reason, the period of proposal submission can be extended for one more year, subject to the approval of the Committee of Departmental Affairs. The dissertation advisors should fulfill the qualification of the full-time assistant professor of TLM or above, and they should publish papers on academic journals. The invited co-advisors being teachers of other departments or universities should be reported to the Committee of Departmental Affairs for approval. TLM will select two or more members to form the "Advice and Review Committee of Ph.D. Dissertation" from the associate professors or above of related departments or graduate institutes of NCTU recommended by the student's advisor. The student's advisor must be one member of the committee, and there should be at least one professor of the members. Students who fail to pass the review may apply for the retrial after six months. Retrial will be limited to be once. Students who fail to pass the retrial of dissertation review should be required to drop out of NCTU. Students who change the dissertation proposal should submit the written application to TLM, and submit new dissertation proposal to newly formed "Advice and Review Committee of Ph.D. Dissertation" for review. Change of dissertation proposal will be limited to be once.

Article 13. During the period of study, if a student wishes to change his/her thesis advisor, a written application should be submitted to the department. The change of thesis advisor is effective after the notification to the original thesis advisor. Agreement from the original thesis advisor is not necessary for the change to be effective.

Article 14. If the thesis advisor wishes to terminate the thesis instruction relationship with the student, a written application should be submitted to the department for approval, and the results will be notified to the student by the department. After the termination of the thesis instruction relationship, the department will assist the student to find a new thesis advisor. The research results related to the ideas or concepts of the original thesis advisor under the thesis instruction can only be used as part of the student's thesis with the agreement of the original thesis advisor. The student's dissertation proposal should be rewritten and submitted to the newly formed "Advice and Review Committee of Ph.D. Thesis/Dissertation" for approval in accordance with the article 12 hereof.

Article 15. A Ph.D. student becomes a Ph.D. candidate if they pass the Ph.D. candidate paper-based qualification examination and fulfill the course requirement of the Ph.D. program.

Article 16. Before applying for Ph.D. degree defense, a Ph.D. candidate should have passed an English Test equivalent to the General English Proficiency Test (GEPT) High-Intermediate level or above (please refer to the Foreign Language Concordance Table), or completed and passed the PhD student English training program offered by the Language Teaching and Research Center of NCTU. Students may apply to waive the course if they acquire the Bachelor degree or above in an overseas university which uses English as the teaching media..

Article 17. A Ph.D. candidate may apply for the Ph.D. degree defense if he/she has completed the dissertation and is recommended by the advisor. According to regulations, the candidate must have published at least two papers with the TLM advisor related to the research title (excluding the paper used to waive the Ph.D. candidate qualification examination), among which at least one of the papers should be published on SCI or SSCI of JCR, and another one is published on TSSCI or international journals with peer-review process. The papers should be published by the Ph.D. student's name, and recognized by the student's "Advice and Review Committee of Ph.D. Thesis/Dissertation." Papers described in article 12 and article 16 should not be repeated. For the papers published by multiple authors, the point should be calculated according to the rules as follows:

- (1) The advisor and co-advisor are NOT counted in the calculation of number of authors. **(In case the student invites a co-advisor, the invitation process should be finished before the publication of the paper. It does not run back over the past.)**
- (2) Two authors: the first author accounts for 60% of the contributions, and the second one accounts for 40%.
- (3) Three or more authors: the first author accounts for 50%, the second one 30%, the third one 20%; and the fourth or the rest should not account for any points.

Article 18. The degree defenses for PhD candidates are generally conducted orally, but written exams may be administered instead if necessary. All oral defenses must be conducted openly. The time and place of the oral defense and the title of thesis/dissertation must be announced in advance.

Article 19. The President of NCTU will select five to nine members to form a committee for the doctoral degree oral defense from the scholars and experts recommended by TLM. The scholars and experts, whether from NCTU or an external organization, must specialize in the area of research or study of the applicant and fulfill at least one of the following requirements, while the number of members from both inside of NCTU and outside of NCTU must be no less than a third of the total number of committee members. The President of NCTU must appoint a committee chairperson from amongst the members. The adviser of the candidate cannot serve as the chairperson. Besides the advisor, at least one full-time teacher of TLM should be included in the committee. If there is no adequate committee member from TLM, full-time teachers of other department

or graduate institute of College of Management should be included. A committee member should fulfill one of the requirements below. He/she must:

- (1) has been a full professor;
- (2) is a fellow or has been a researcher at Academia Sinica.
- (3) has been an associate professor or an associate researcher at Academia Sinica, and has outstanding academic achievements.
- (4) holds a doctoral degree and has outstanding academic achievements.
- (5) has outstanding academic or professional achievements in certain rare or specific fields.

The criteria of qualification determination for items (3) to (5) should meet the requirement of publishing at least 4 papers of ISI journals in the recent five years.

Ph.D. candidates' spouse, or the blood relatives and the affinity within the third degree should not serve as a member of the committee.

Article 20. All members of an oral defense committee must attend the oral defense in person; stand-ins are not permitted. The oral defense process may only begin when attended by at least five committee members.

Article 21. The passing grade and full marks of the oral defense are 70 and 100, respectively. The results should be calculated by the average of the scores given by the members present, from a single evaluation. A doctoral candidate is deemed failed and no average score should be calculated if the scores given by a third or more of the members present are below the passing grade. Students who failed to pass the degree defense may apply for the retrial in the next semester or next academic year of their extended study period. Retrial will be limited to be once. Students who fail to pass the retrial of degree defense is required to drop out of NCTU. A candidate is deemed failed when plagiarism or cheating is discovered in the thesis/dissertation and confirmed by the oral defense committee.

Article 22. NCTU will confer a master degree upon a doctoral student who passes the PhD candidate qualification examination (COM) but fails the PhD oral defense if the dissertation is approved by the oral defense committee as qualified for a master degree.

Article 23. For candidates passing the oral defense, members of the oral defense committee should demonstrate directions and key points explicitly for the candidates' reference to revise the thesis. The candidates should submit the revised thesis for review, which is subject to the approval of the thesis advisor and all members of the committee. The review is evaluated on a pass/fail basis and not on a score. For candidates passing the thesis review, "The Authorization of Oral Members for Research Thesis/Dissertation" should be signed by all committee members of the oral defense. After candidates finish the thesis review, the score of thesis review will become that of the oral defense.

Article 24. If a student passes the oral defense before January 1st or July 31st, but failed to submit the "The Authorization of Oral Members for Research Thesis/Dissertation," within the first two weeks of the next semester, he or she should carry out the registration in the next semester. If a student does not submit

the authorization by the end of the maximum study period, the study is deemed failed and the student is required to drop out of NCTU in accordance with regulations.

Article 25. For students who pass the oral defense and the dissertation review, TLM office should submit the score of the dissertation review and "The Authorization of Oral Members for Research Thesis/Dissertation" to the Registration Division of the Office of Academic Affairs for registration within one week, excluding those who study in the Education Program in NCTU continuously with the proof by the Center of Teacher Education. The graduation semester is the one when the score of the dissertation review and "The Authorization of Oral Members for Research Thesis/Dissertation" are submitted. If students who submit the score of the dissertation review and "The Authorization of Oral Members for Research Thesis/Dissertation" do NOT perform the deregistration procedure, their status should be treated as graduated.

Article 26. Doctoral theses/dissertations (including respective abstracts) must be written primarily in Chinese and comply with the NCTU Format for Thesis/Dissertation. A student should submit five copies of the thesis/dissertation, and is required to send an electronic version of the abstract and thesis/dissertation to the university website within one month of passing the oral defense (please refer to NCTU Library's Abstract, Thesis and Dissertation Electronization Specification for details). Students may choose the item, "Do not open," if they do not want to open the dissertation to the public because they are submitting papers for publication, applying for patent, or of other reasons. If plagiarism or cheating is discovered in the thesis/dissertation and confirmed, NCTU will revoke the degree conferred and request the student to return the certificate issued.

Article 27. The Regulations and their revisions will be implemented after being passed at the Committee of Departmental Affairs, examined at the College Academic Office of College of Management and University Academic Office, and reported to the Academic Affairs Meeting for approval. The same procedure will be applied if the regulation is amended. If in dispute, the Regulation is superseded by the "Degree Conferment Law and Code of Practice for Degree Conferment Law" of the Ministry of Education and the "National Chiao Tung University Regulations for Master and Doctoral Degrees Conferment."

Article 28. The regulations aforementioned should be published after being revised by the Committee of Departmental Affairs, and are applicable to students admitted in the next academic year.