

Routing for On-Campus Approval of 3+X Program Actions

NC State

Program Title: 3+X Program with South China Normal University (Master of Financial Mathematics)

CIP Code (6 digits): _____

See <https://nces.ed.gov/ipeds/cipcode/default.aspx?y=55> for information about CIP codes

Proposing College(s): College of Sciences Contact: Dr. Zhilin Li, Department of Mathematics

Partnering Institution

Name of Partner Institution: South China Normal University, China

Title of Degree: Master of Financial Mathematics (NC State degree)

Program Contact: Dr. Zhilin Li, Professor, Department of Mathematics

Proposed Effective Date: August 1, 2018

Routing of Action: Indicate date when the following occurs

Completed Proposal (Memorandum of Understanding is required)

8/17/17 A.C. Department Head endorses*
8/18/17 KCB College Curriculum Committee (graduate) recommends*
8/18/17 JMB College Dean endorses*

Proposal moves to Undergraduate or Graduate office for routing

_____ Recommended by Vice Provost, DELTA, if applies*
_____ Substantive Change Review Team (SCRT) reviews
_____ If SACS notification is required, SCRT prepares letter for Chancellor to send to SACS
_____ Office of Global Engagement reviews (if foreign institution)
_____ Administrative Board of the Graduate School recommends
_____ Associate Deans Council **or** Graduate Operations Council informed
_____ Dean (Graduate School or DASA) approves*

Proposal move to the Provost's office for routing

_____ Vice-Provosts informed
_____ Deans' Council recommends*
_____ Executive Vice Chancellor and Provost approves*
_____ Chancellor's Executive Officer's (EOM) recommend
_____ University Council informed
_____ Board of Trustees subcommittees recommend
_____ Chancellor approves
_____ Accreditation Liaison prepares SACS letter, if applicable

* Signature is required on the Memorandum of Understanding (MOU)

MEMORANDUM OF AGREEMENT FOR “3+X” PROGRAM

BETWEEN

**NORTH CAROLINA STATE UNIVERSITY
RALEIGH, NC, U. S. A.**

AND

**SOUTH CHINA NORMAL UNIVERSITY
GUANGZHOU, PR CHINA**

This Agreement is to formalize the academic exchange between North Carolina State University (hereafter referred to as NC State) and South China Normal University (hereafter referred to as SCNU) for a 3+X Master’s program. The two institutions subscribe to the statement of principles and procedures given below and to the terms of agreement regarding the responsibilities of each institution. This agreement is based on a spirit of cooperation, reciprocity, and of mutual benefit to both parties.

Both Universities wish to enter into an arrangement as set forth below:

1. Undergraduate students who complete three (3) years’ course studies at SCNU and one semester of studies at NC State that result in a BS degree from SCNU may be considered for enrollment in an NC State Master’s degree program (non-thesis) (hereafter referred to as the Program).
2. The Program may be completed in one additional year plus one summer session. Some degrees may require a total of 3 or more semesters due to some graduate courses not being offered in summer sessions, any necessary pre-requisite courses, or optional elective courses the student may take.
3. Admission to the Master’s program is contingent upon the student meeting the relevant entry requirements as established by NC State and the degree program to which they are applying.
4. Upon successful completion of NC State’s Master’s program, SCNU students may be accepted into NC State’s PhD programs provided they pass the relevant entry exam set by individual departments.

Both Universities have agreed to the terms and conditions stated below.

ENTRY AGREEMENT FOR 3+X PROGRAM

- (1) SCNU will select qualified rising senior students at the end of their first semester in their third year of education to attend NC State for their fourth year of study. SCNU students need to have:
 - a) completed the third year of the BS program at SCNU and achieved an overall GPA (Grade Point Average) of more than 3.0 on a 4.0 scale;
 - b) obtained minimum requirement for TOEFL or IELTS scores needed for

- admission into a graduate program at NC State as listed online;
- c) obtained an official written recommendation statement from SCNU confirming the student has successfully passed the SCNU evaluation.
- (2) SCNU students who have completed all four (4) years' of education and have received their BS degrees may apply for masters programs at NC State through the regular application process.
- (3) NC State will evaluate those selected SCNU students using NC State's admission standards for their qualifications. NC State faculty may conduct an on-site interview to ensure student quality. The selected SCNU students who meet both NC State and the Program's entry qualifications will be admitted to NC State as "GTI Certificate students" in the Global Training Initiative (GTI) program. Annually the parties will negotiate the number of admitted students with an anticipated maximum of 10 students each year.
- (4) This 3+X Master's program will focus on the existing degree programs offered by the Department of Mathematics in the College of Sciences (see the list below for current Master's programs). The specific Master's programs offered in one year may depend on the interests of SCNU students and specific course availability at NC State.
- Masters of Financial Mathematics
 - Masters of Mathematics
- (5) As NC State's policy will not allow admitting students into graduate programs prior to completion of their BS degrees, these students will first apply to and matriculate via the GTI Certificate Program for the first (fall) semester (and may come during an optional "early start" program in July). As GTI Certificate students they will be expected to register full-time (minimum 12 credit hours) and to take the required courses that are designed for the specific Program as well as the required GTI 401 Colloquium. Credit-bearing and non-credit English courses are also available during this first semester, and students will have the opportunity to take the TOEFL or other standardized tests after arrival, but prior to October 15. The GTI has a separate on-line application process, which must be completed before a student visa certificate can be issued. See <http://www.ncsu.edu/gti> for more information.
- (6) After they have successfully completed the course work needed to complete their BS degree (minimum 12 credit hours) as GTI Certificate students at NC State, SCNU will grant each of these students a statement that the student has completed BS degree requirements in their respective discipline by SCNU. Students will be required to provide an official letter from SCNU indicating the BS degree requirements are satisfied prior to being approved for the Program. They must also provide a final transcript once the BS degree has been conferred.

- (7) NC State will officially admit SCNU students into a NC State Masters degree program following the guidelines and requirements of each Master's degree program at NC State. The typical non-thesis Master's program at NC State requires 30-36 credit hours, depending on the specific discipline. NC State requires that the last 18 credit hours for a Master's degree have to be taken after students have been admitted into the Master's program at NC State.
- (8) SCNU students will pay out-of-state tuition, fees and living expenses during their studies at NC State. If a premium is associated with the Program at NCSU, students will also pay this premium. The NC State Cashier's Office provide current rates online (<http://www.fis.ncsu.edu/cashier/>). To complete the Program in one (1) year, it is anticipated that students will likely also need to register for a minimum of six (6) credits during the Summer Session(s). NC State may provide guidance and logistical help with student housing and other relevant arrangements. The amount of living expenses may vary depending on the type of housing and living preferences.
- (9) Some of the required courses for Master's degrees may be taken as Distance Education courses offered by NC State (maximum of three credits per semester), which will be counted toward the total credit hours required for the completion of Master's degree programs.
- (10) Upon successful completion of all course requirements in each of the Programs, SCNU students will be granted the Master's degree by NC State.
- (11) SCNU students who return to SCNU with their Master's degree may enter SCNU's Ph.D. programs should they meet the relevant requirements set by SCNU.
- (12) SCNU students who choose to continue a Ph.D. program at NC State will be required to apply following the normal application procedures and admission requirements set by NC State.

GENERAL AGREEMENT

- 1) This Agreement represents the entire understanding between the parties and supersedes all other arrangements. This Agreement may only be changed with the written consent of both parties.
- 2) If either party shall temporarily fail to enforce any provision of this Agreement such temporary forbearance shall not constitute a waiver.
- 3) The two parties shall be in regular communication to resolve any problems or issues relating to this agreement.

- 4) Neither party may assign, transfer or sub-contract its commitments under this Agreement.
- 5) Either party may terminate this Agreement if the other shall be in material breach and following written notice of such breach shall not have remedied the breach within a period of 30 days.
- 6) The relationship of NC State and SCNU under this Agreement shall be that of independent contractors, and a party shall not be deemed, nor hold itself out as being a partner or agent of the other party. In addition, neither NC State nor SCNU shall be liable for the acts of the other, and they shall not be liable for the acts of participating students in the Program.
- 7) Subject to the governing law of each Institutions' jurisdiction regarding public records, the Institutions agree not to use or disclose to anyone information belonging to the other party which is disclosed in connection with this Agreement which is of confidential nature and agree not to make any announcements of any nature in respect of this Agreement without the consent of the other party hereto.
- 8) Either party may terminate this Agreement for any reason upon nine (9) months' prior written notice to the other.
- 9) This Agreement shall remain subject to laws and regulations of both countries.
- 10) This agreement is for a period of five years, unless otherwise specified. Prior to the end of the fifth year the agreement must be reviewed and re-approved if requesting an extension. Upon the scheduled review date, responses to review criteria will be required to be completed and provided to the university review committee. If the agreement will be discontinued, a teach-out plan will be required for those students remaining in the program.

SIGNATURES

Executive Vice Chancellor and Provost
North Carolina State University

President
South China Normal University

Signature: _____
Dr. Warwick Arden

Signature: _____
Dr. Ming Liu

Date: _____

Date: _____

Dean, Graduate School
North Carolina State University

Director of Academic Affairs Office
South China Normal University

Signature: _____
Dr. Maureen Grasso

Signature: _____
Dr. Jian-Wen Xiong

Date: _____

Date: _____

APPENDIX: Suggested Curricula and Timelines

MS degrees in Mathematics.

The MS degree in Mathematics from NC State requires 30 credit hours. When sought through the 3+X program, this degree requires additionally

- a Master's project which account for 3 of the above 30 credits,
- 3 GTI credits which do not count toward the 30 credit hours.

Due to the time constraints associated with the 3+X program, we offer two fixed tracks for the Math MS, one in Applied Mathematics and one in pure Mathematics.

Electives may include one or two 400-level courses and are subject to the approval of the director of the graduate program.

Fall 1 (9 graduate credit hours+3 GTI credit as non-degree seeking students)

GTI 401 U.S. Culture and Education Colloquium

Pure Math:

MA 515 Analysis
MA 520 Linear Algebra
MA 521 Algebra

Applied Mathematics:

MA 515 Analysis
MA 534 Intro to PDEs
MA 573 Mathematical Modeling I

Spring 1 (9 graduate credit hours)

Pure Mathematics:

MA 715 Functional Analysis
MA 720 Lie Algebra
MA Elective

Applied Mathematics:

MA 734 PDEs.
MA 574 Mathematical Modeling II
MA 580 Numerical Analysis

Summer 1 and/or 2: (3 credit hours)

MA 676 Master's project

Fall 2 (9 graduate credit hours)

Pure Mathematics

MA 551 Topology
MA Elective
MA Master project

Applied Mathematics:

MA Elective
MA Elective
MA Elective

Masters of Financial Mathematics¹

The Masters of Financial Mathematics from NC State requires 30 academic credits plus 6-7 credits for seminars and a project or internship. When sought through the 3+X program, this degree requires additionally

- 3 GTI credits which do not count toward the credit hours mentioned above.

Electives may include one or two 400-level courses and are subject to the approval of the director of the graduate program.

Fall 1 (12 graduate credit hours+3 GTI credit as non-degree seeking students)

| | |
|---------|---|
| GTI 401 | U.S. Culture and Education Colloquium |
| ST 501 | Fundamentals of Statistical Inference I |
| ISE 711 | Capital Investment Economic Analysis |
| MA 528 | Options and Derivatives Pricing |
| FIM 500 | Career Development for Quants |

Spring 1 (13 graduate credit hours)

| | |
|---------|---|
| MA 547 | Financial Mathematics |
| ST 502 | Fundamentals of Statistical Inference II |
| FIM 548 | Monte Carlo Methods for Financial Mathematics |
| FIM 601 | Seminar in Financial Mathematics |
| | Elective |

Summer 1 and 2: (1 credit hour)

| | |
|---------|---|
| FIM 650 | Internship in Financial Mathematics, or |
| FIM 675 | Project in Financial Mathematics |

Fall 2 (10 graduate credit hours)

| | |
|---------|--|
| ECG 766 | Computational Methods in Economics and Finance |
| FIM 601 | Seminar in Financial Mathematics |
| | Elective |
| | Elective |

¹ Program requirements may change, but students will be able to complete the degree in 3 full semesters.