

Master Program in Digital Economy

Discipline Classification: Economy **First Class Discipline Code:** 02

First Class Discipline Name: Economy **Second Class Discipline Code:** 0258

Second Class Discipline Name: Digital Economy

1. Introduction to the Discipline

The School of Management Science and Engineering boasts a highly-internationalized faculty team and has been committed to promoting extensive international education cooperation. Getting along with academic frontier and international trends, our school has obtained the CILIP international certification. The School of Management Science and Engineering is continuously propelled by the significant advances in digital economy. The school have established research group and laboratories in big data analytics, digital humanities, fostering close relationships with related industries and institutions.

The Program in Digital Economy is strategically aligned with China's national initiative for building a "Digital China" and the specific economic development needs of Jiangsu Province. Leveraging the university's distinctive strengths in meteorology and environmental sciences, its national-level Artificial Intelligence Industry College, and the Institute for Manufacturing Development, the program integrates digital economy with key practical domains such as meteorology and environment, manufacturing, and finance. The program's goal is to train professionals equipped with solid theoretical foundations and research capabilities in digital economy, strong analytical thinking in digital economics, and practical skills relevant to digital economy operations. The program currently has a dedicated faculty of 15 teaching and research staff, including 4 professors and 8 associate professors. The team features a well-balanced structure and possesses extensive experience in both academic research and practical management, ensuring robust support for graduate education. Over the past five years, faculty members have undertaken more than 10 national and provincial-level research projects and published over 80 papers indexed in SCI/SSCI, CSSCI, and EI. Additionally, the discipline has engaged more than 10 industry mentors holding senior professional titles from prestigious institutions and enterprises.

2. Objectives

The Master of Digital Economy aims to foster professionals with a robust foundation in digital economy theory and research literacy, excellent digital economy thinking skills, and practical abilities pertinent to digital economy-related business practices. These individuals should be capable of effectively engaging in work related to the digital economy, operational and managerial roles within digital industries and enterprises, and the digital transformation of businesses and industries. They should embody the innovative and practical capabilities essential for excelling in the digital economy.

Students in the program should master systematic political and ideological theories, firmly establish a correct outlook on world and life, love the motherland, abide by laws and regulations, have good moral character, rigorous study style, be physically and mentally healthy, and have strong entrepreneur spirit and dedication. They should be familiar with the principles and policies of our Party and country, understand our national conditions, possess a global perspective, be proficient in using foreign languages, be familiar with international rules and have great international competitiveness.

In addition, the program will develop a range of transferable skills that can be utilized in a wide variety of future careers such as research, analysis, problem solving and programming. There will also be the opportunity to improve presentation, communication and intercultural communication skills. Graduates of this program are expected to undertake the jobs related to information collection, analysis and management for institutions, such as national meteorological departments, industrial and commercial enterprises, financial institutions, and scientific research institutions.

3. Study Directions

The program trains students to master systematic knowledge and skills in inter-disciplines such as big data analysis and digital Economy, to analyze the data for business operations by the use of digital economic models. Specifically, it includes the following four research directions:

(1) Digitalization of Industries.

Fields: 1) Industrial Internet; 2) Intelligent Transformation of Manufacturing; 3) Theory and Practice of Smart Manufacturing.

(2) Data Element Market.

Fields: 1) Supply of Data Elements; 2) Data Asset Evaluation; 3) Circulation of Data Elements.

(3) Governance of the Digital Economy.

Fields: 1) Digital Security and Digital Governance; 2) Big Data Decision Making and Intelligent Applications; 3) Digital Government and Public Services.

4. Educational System and Length of Study

The length of education for master students is two (2) years.

If due to special circumstances a master student is unable to graduate on time, the student must apply in person, and following the supervisor's opinion and signature, the approval of the affiliated School must be sought. The application should then be submitted to the Graduate School for approval and the College of International Students for archiving. The maximum length of time that master's students can study at the University in that degree is five (5) years and during this extension period, international students shall pay for the study and accommodation as required.

5. Course Introduction

5.1. Course Introduction

Statistics: Statistics is the methodological science of data collection, collation and analysis. Statistics covers all substantive sciences, and its basic method of understanding is to summarize and summarize the general quantitative characteristics of things on the basis of a large number of observations, including statistical survey, statistical collation, statistical analysis, statistical inference and other basic content. Statistics, as a methodological discipline, can provide methodological support for students in economic management to understand and discover the quantity law of economic management phenomena and carry out empirical research in this field.

Data Visualization: Students of the major are expected to be able to not only systematically analyze data, but also effectively and comprehensively present and report the analytical results. The course aims to, on the one hand, enhance students' analytical abilities, and, on the other hand, develop their ability to further summarize and explore the analytical results via data visualization. Meanwhile, the course also puts an emphasize on the reporting of the analytical results in visualized forms, and thus trains students' ability in data-related communications. After learning the course, the students will 1) master the principles of data visualization, especially the visual channels; 2) be able to design appropriate visualization in accordance to the detailed context and

objectives; 3) be able to sufficiently apply Python and relevant packages for visualization practices; and 4) be able to summarize and report the visualized analytical results.

Data Mining: The course offers a comprehensive introduction to the field of big data, focusing on its role in transforming industries and decision-making processes. Topics include the foundational principles of big data, data collection, storage, and management techniques, as well as data cleaning and preprocessing. Students will gain insight into analytical frameworks and tools for processing large datasets, such as data mining, machine learning, and visualization. Additionally, the course addresses data privacy, ethics, and security considerations. By the end, students will have the fundamental skills required to conduct big data analyses and apply data-driven strategies, equipping them for advanced studies and practical big data applications.

E-commerce: The course mainly introduces the development trend of e-commerce, the social environment and technical environment for the operation of e-commerce, the basic theory of e-commerce, the collection and arrangement of e-commerce information, the methods of network marketing and promotion, the theory and flow of e-payment, the basic ideas and methods of network transaction security, and the basic principles of logistics. Through curriculum, students have the initial ability to independently engage in e-commerce, and have the knowledge framework for the follow-up course learning and e-commerce application capabilities improvement.

Digital Economy Frontiers: The course "Digital Economy Frontiers" is designed to explore the cutting-edge theories, methodologies, and practical applications at the intersection of Economy and digital technology. It aims to provide students with a comprehensive understanding of how digital transformation impacts economic structures, business models, market dynamics, and policy frameworks. The curriculum integrates theoretical insights with real-world case studies to prepare students for the challenges and opportunities presented by the digital economy.

5.2.1 Degree Course (19 Credits)

A — General Basic Courses (10 credits)

B — Professional Basic Courses (9 credits)

5.2. 2. Non-Degree Courses (8 credits)

C — Limited Elective Courses (2 credits)

D — Professional Elective Courses (4 credits)

E — Practical Components / Practice Modules (2 credits)

6. Training Style and Methods

The program of master's students is a combination of course and thesis work. Usually, the course work will be done within one (1) year and the thesis work takes more than one year.

The training of master's students is implemented with the supervisor tutorial system. With this system, supervision is carried out with a combination of a supervisor and a group of others.

7. Degree Thesis

(1) Topic Selection and Thesis Proposal

The master's degree thesis proposal should be completed in the early third semester. For those who need to postpone the submission of the proposal due to special circumstances, a written application should be submitted to the Graduate School in advance and the time limit for delay shall not exceed two (2) months. After the proposal is accepted, changes are not permitted in principle. If there is, however, a major change in topic selection, the proposal should be rewritten.

(2) Midterm Evaluation

This is in accordance with the University midterm evaluation requirements.

(3) Thesis Writing Requirements

This is in accordance with the University thesis writing requirements.

(4) Thesis Pre-defense and Defense

Master's students must complete all the required courses, pass all the courses and midterm evaluation, complete academic and practice activities and acquire required credits before they are allowed to apply for thesis pre-defense which is held before the end of March each year. Then they will go for blind review of the thesis. Only those students who have passed the pre-defense and blind review can apply for the final defense.

(5) Degree Applications

Degree applications is carried out according to the specific implementation procedures outlined in the Nanjing University of Information Science & Technology Masters and Doctorate Degree Conferment Regulations and the Nanjing University of Information Science & Technology Regulations on the Program and Qualifications of International Master Students (Trial).

Students must complete sufficient coursework in the program to earn no fewer than twenty-seven (27) credits, including at least sixteen (16) credits from degree courses, achieve the required academic results, pass HSK Level 3 (or above), and successfully complete the thesis

defense.

8. Practice

Practice is combined with Academic Reports and other practice activities. It is worth two (2) credits.

During the period of master's degree thesis work, a public academic report should be held at least once (excluding the Thesis Proposal). The student's supervisor and the school affiliated are responsible for assessing the quality of the academic report. Master's students should also participate in no less than six (6) academic activities including (but not limited to) academic reports, conferences, teaching and technology competitions both on and off the University campus. Students are required to take records on the Academic Activities Brochure and only qualified students can have the final defense.

南京信息工程大学英文授课留学生培养方案

Program for International Students in English-medium Instruction, Nanjing University of Information Science & Technology (NUIST)

Schedule 1: Curriculum for International Master's Students in Digital Economy

Type	Course		Class Hours	Credits	Opening Semester	Teaching Method	Form of Evaluation	Note
A	入学教育	Orientation	16	1	1	In-Person Instruction	Exam	9 credits
	中国概况 I	China Overview I	32	1	1	In-Person Instruction	Exam	
	中国概况 II	China Overview II	32	1	2	In-Person Instruction	Exam	
	综合汉语 I	Comprehensive Chinese I	96	2	1	In-Person Instruction	Exam	
	综合汉语 II	Comprehensive Chinese II	96	2	2	In-Person Instruction	Exam	
	国际汉语能力强化	Chinese Language Proficiency Enhancement	64	2	3	In-Person Instruction	Exam	Electives 1 credit
	中国文化与气象	Chinese Culture and Meteorology	32	1	1	In-Person Instruction	Exam	
	中华文化与传播	Chinese Culture and Communication	32	1	1	In-Person Instruction	Exam	
	跨文化交际	Cross-cultural Communication	32	1	2	In-Person Instruction	Exam	
B	统计学	Statistics	32	2	1	In-Person Instruction	Exam	No less than 9 credits
	数据挖掘	Data Mining	32	2	2	In-Person Instruction	Exam	
	区块链安全	Blockchain and security	32	2	2	In-Person Instruction	Exam	
	数字经济前沿	Digital Economy Frontiers	48	3	1	In-Person Instruction	Exam	
C	数据可视化	Data visualization	32	2	2	In-Person Instruction	Exam	No less than 2 Credits
	人工智能通识课	General Education Course in Artificial Intelligence	16	1	2	In-Person Instruction	Coursework	
D	计量经济学	Econometrics	32	2	2	In-Person Instruction	Coursework	No less than 4 credits
	电子商务	E-commerce	32	2	2	In-Person Instruction	Coursework	
	产业组织	Industrial Organization	32	2	1	In-Person Instruction	Coursework	
	公司金融	Corporate Finance	32	2	2	In-Person Instruction	Coursework	
	供应链管理	Supply Chain Management	32	2	2	In-Person Instruction	Exam	
E	学术报告和实践活动 (必修)	Academic Seminars (Compulsory)	32	2	2	Others	Others	2 credits

Note: A) General Courses; B) Major Compulsory Course; C) Limited-Elective Course; D) Major Elective Course; E) Practice

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Schedule 2: Contents and Requirements of Each Stage in the Master's Degree Program

Stage	Arrangements and Requirements	Time Point
1. Formulating the Individualized Study Plan	Based on the curriculum and in light of the student's actual situation, conducted under the guidance of the supervisor.	Within 1 week after enrollment
2. Coursework Stage	Arranged according to the course settings shown in Schedule 1.	
3. Academic Activities	During the period of study, the student shall participate in no fewer than 8 academic activities (including at least 2 activities outside the student's own secondary discipline).	
4. Thesis Proposal	Write the thesis proposal and organize a proposal defense.	Completed by the end of the third semester
5. Mid-term Assessment	Each training unit shall organize an assessment panel to conduct a comprehensive review of the student's thesis progress. Students who fail the assessment will trigger an early warning mechanism. If a student fails the mid-term assessment a second time and is deemed unsuitable for continued training, they will be given a certificate of completion rather than a degree.	Completed by the end of the third semester
6. Pre-defense	Each training unit shall organize a pre-defense expert panel to rigorously review the student's degree thesis or practical achievements, focusing on academic/research quality and innovation, workload, research outcomes, key conclusions or results, academic norms, etc., and provide specific suggestions for revision. Only after passing the pre-defense may the student submit the degree thesis or practical achievements for external review.	Completed in the fourth semester
7. Final Thesis Defense	After passing the college's defense qualification review, the student shall undergo degree thesis review and defense in accordance with the university's relevant regulations on thesis evaluation and defense.	Completed in the fourth semester