

No.	中文名称	Course name	Department/College	Credits	Teaching hours	Description
2621005	材料热力学	Thermodynamics of materials	材料系 Department of Material Science and Engineering	2	32	Thermodynamics of materials for first-year graduate students who have taken an undergraduate course on either physical chemistry or thermodynamics of materials. There will be 8 sets of homework assignments (30%), one mid-term exam (30%) and one final exam (40%)
0924002	材料电子显微学	Transmission electron microscopy	材料系 Department of Material Science and Engineering	2	32	
1023101	现代永磁电机理论与控制	Permanent Magnet Electrical Machines and Control Systems	电气工程学院 College of Electrical Engineering	2	32	Permanent magnet (PM) electric machines have gained extensive research interests and applications, due to the development of modern electric machine theories, materials, power electronics and control theories. This course is designed to introduce the principle and control strategies of various PM machines and drive systems. Some practical applications will also be presented. The course will help the students understand the basic theory and gain the developing skills of PM machines.
1013069	模拟与混合信号集成电路与系统设计	Analog and Mixed Signal IC and System Design	电气工程学院 College of Electrical Engineering	2	32	
2914001	材料表面科学	Material Surface Science	高分子系 Department of Polymer Science and Engineering	2	32	"Materials Surface Science" is an interdisciplinary course, which brings physics, chemistry, materials science and even biology together. This course will be taught mainly by Prof. Michael Grunze. He is Chair Professor for Applied Physical Chemistry at the University of Heidelberg. Prof. Bucky Ratner and Allan Hoffman, both are members of National Academy of Engineering, USA, will also be invited to make lectures.
2923002	高分子构筑学	Polymer Architectures	高分子系 Department of Polymer Science and Engineering	2	32	Polymers have various topologies including linear, cyclic, comb-like, dendritic, hyperbranched, etc., which results in various properties. This course introduces synthetic strategies and modern technologies to build up macromolecules and nanoparticles with different architectures, corresponding mechanisms and kinetics, and postpolymerization functionalizations as well.
3013109	先进光子材料和纳米光子学	Advanced Photonic Materials and Nanophotonics	光电系 Department of Optical Engineering	2	32	Liquid Crystal Photonics is designed for students interested in materials science related interdisciplinary electronics/electro-optic engineering areas, to provide an essential understanding of the mechanisms of the polarization nonlinearity in electronic materials as well as the principle of operation of these materials in various photonic and opto-electronic applications (e.g., frequency conversion, optical control/communication and information storage). Analytical methods, utilizing the electromagnetic wave theories and tensor operations, will be covered in this course to treat anisotropic nonlinear optical materials for their wave-matter interaction processes and to enable device designs. Technological issues in research and development of advanced opto-electronic devices using nonlinear optical materials are discussed with students' participation.
2423027	应用固体力学	Applied Mechanics of Solids	航空航天大学 School of Aeronautics and Astronautics	2	32	The course is designed for the graduate students from solid mechanics, engineering mechanics, general mechanics and fundamental mechanic is to understand the fundamental principles to analyze deformation of solids, concepts of elasticity, plasticity, including kinematics and deformation, stress and equilibrium, constitutive relation and failure criteria, basic problems and generalized solutions in linear elastic theory, plasticity and finite element analysis. The following chapters are included in this course. 1. Overview of solid mechanics; 2. Governing equations; 3. Constitutive models; 4. Solutions to simple boundary and initial value problems; 5. Solutions for linear elastic solids; 6. Solutions for plastic solids; 7. Finite element analysis; 8. Modelling materials failure.
2423025	工程力学前沿及应用	Frontiers of engineering mechanics	航空航天大学 School of Aeronautics and Astronautics	1	16	The topics include introduction to vibration and control, basic control theory and structural control strategies, as well as control algorithms and evaluation of control effectiveness, advanced material behavior, theory and applications of multi-phase fluid and turbulence, numerical simulation method for complex flows, smart structures, precision structronic/mechatronic systems and applications.
2124075	数据挖掘	Big Data (Data Mining)	计算机学院 College of Computer Science and Technology	2	32	The course is designed to give a broad, yet detailed overview of the field of data mining for graduate student. Through the learning of data mining theory and algorithms, students are expect to have basic research ability and be able to resolve problem in real world using data mining techniques.
2109602	科学计算可视化	Visualization in Scientific Computing	计算机学院 College of Computer Science and Technology	2	32	
2124082	云计算技术及应用	Cloud Computing	计算机学院 College of Computer Science and Technology	2	32	Cloud computing is an expression used to describe a variety of computing concepts that involve a large number of computers connected through a real-time communication network such as the Internet. The purpose of the course is to introduce to the students the basic concepts and development history of Clouds, the key cloud platforms already implemented and put in use, the key technologies underlying Cloud applications. The main contents include cloud storage, cloud app engine, elastic computing in clouds, big data in clouds, cloud security and privacy, mobile cloud computing, etc. After the course, students will master the basic concepts, and are aware of the state of the art in relevant fields.
1121302	矩阵论	Matrix Theory	控制系 Department of Control Science and Engineering	2	32	

0821064	现代热物理测试理论与技术	Modern measurement theory and technology for Engineering thermophysics	能源系 Department of Energy Engineering	2	32	
2723012	商用车技术	commercial vehicle technology	能源系 Department of Energy Engineering	2	32	This course focuses on the Product Development Process (PDP) of commercial vehicle. The main contents include the markets of China and German, PDP overview and Product Planning, market analysis and product planning, and the product development process in detail at the AUDI car company etc.
0123136	经济学研究方法论	Research Methodology in Economics	经济学院 College of Economics	2	32	The course entitled "Research Methodologies in Economics" is designed for research postgraduate students who are majored in broad fields of economics. This course is featured as offering students comprehensive and practical methodologies necessary for conducting rigorous economic researches by means of reading and discussing published papers. In this course, students will be taught through various examples how to choose research topics, how to build theoretical model, how to conduct convincing empirical analysis, and how to wrap up their theoretical and empirical findings into research papers. Students are required to intensively read and comment on papers published in top economics journals, and if possible replicate some of them empirically. They are also encouraged to develop and present their own researches in the course. By completing this course, students should have 1) been familiar with those most widely used research methodologies in economic research; 2) equipped themselves with the techniques of dealing with various empirical issues and successfully identifying a
0123135	金融衍生品	Financial Derivatives	经济学院 College of Economics	2	32	Derivative securities are the most rapidly growing area in the global financial market. In 2010, the notional global market value of derivatives was USD 605 trillion, 10 times world GDP. That of primary financial assets was only twice world GDP. Given the growing large size of the derivative market, a careful and in-depth study on derivative securities becomes very important to researchers and practitioners. The purpose of this course is to provide a comprehensive analysis on advanced derivatives market and option pricing theory. It consists of two parts, in which the first part focuses on the market while the second one focuses on the pricing theory. The classical literature and current research will be introduced during the process of learning both parts.
2021027	管理研究方法 (英)	Business Research Methods	管理学院 School of Management	3	48	In this course we will study the importance of business research methods in scientific problem-solving. The focus is on business research proposal, design, measurement, quantitative analysis and reporting.
2021029	管理统计学 (英)	Managerial Statistics	管理学院 School of Management	3	48	As a fundamental tool course, management statistics plays a extremely significant role in social science field, and statistics method is extensively used in management science, economics, finance, financial accounting and many other disciplines. So management statistics has become an important profession-related compulsory. The course is structured as follows, Chapter1 introduction, Chapter2 data and data acquisition, Chapter3 a preliminary analysis of sample data, Chapter4 simple application of SPSS, Chapter5 general distribution, Chapter6, parameter hypothesis test, Chapter7 variance analysis, Chapter8 correlation analysis, Chapter9 linear regression analysis.