课程代码（Coursenumber）  
Chemistry 7870 (787)  
  
课程对象（Audience）  
Primarily for Graduates  
  
开课教师（Teacher）  
Professor Park  
  
学期（Semester）  
Fall  
  
课程描述（Description））  
Chem 7870 is designed to provide the mathematical background needed for graduate level study of topics in physical chemistry, such as quantum mechanics and statistical mechanics, as well as a set of analytical and computational tools useful for research in both experimental and theoretical physical chemistry.  
  
课程提纲（Syllabus）  
I. Linear algebra and vector spaces (Chapter 5, 9)  
II. Matrices, eigenvalues and eigenvectors (Chapter 10)  
III. Vector calculus (Chapter 5-7)  
IV. Curvilinear coordinates (Chapter 8)  
V. Functions of a complex variables (Chapter 4, 18)  
VI. Functions defined ad integrals & asymptotic expansions (Chapter 3)  
VII. Ordinary differential equations (Chapter 11)  
VIII. Nonlinear differential equations: qualitative methods (Chapter 13)  
IX. Series solution of differential equations (Chapter 12)  
X. Orthogonal polynomials and Sturm-Liouville theory (Chapter 14)  
XI. Fourier series (Chapter 15)  
XII. Integral transforms (Chapter 17)  
  
课时信息（Totalhours）  
TTh 10:10AM-11:25AM  
  
教参信息（Textbookinfo）  
D.A.McQuarrie, “Mathematical Methods for Scientists and Engineers”  
1 Physical and Chemical Kinetics: includes CD-ROM (Topics in Physical Chemistry) by R. Stephen Berry, Stuart A. Rice, and John Ross (Hardcover - Aug. 30, 2001)  
ISBN-13: 978-0195147506  
世界各地拥有馆藏的图书馆（OCLC）:96  
2 Physical Chemistry of Electrolyte Solutions: Modern Aspects (Topics in Physical Chemistry) by Josef M.G. Barthel, Hartmut Krienke, and Werner Kunz (Hardcover - July 11, 2002)  
ISBN-13: 978-3798510760  
世界各地拥有馆藏的图书馆（OCLC）:144  
3 Carbon Nanotubes: Advanced Topics in the Synthesis, Structure, Properties and Applications (Topics in Applied Physics) by Ado Jorio, Gene Dresselhaus, and Mildred S. Dresselhaus (Hardcover - Mar. 11, 2008)  
ISBN-13: 978-3540728641  
世界各地拥有馆藏的图书馆（OCLC）:114  
4 Ionic Liquids (Topics in Current Chemistry) by Barbara Kirchner (Hardcover - Dec. 14, 2009)  
ISBN-13: 978-3642017797  
世界各地拥有馆藏的图书馆（OCLC）:42  
5 Photo-Excited Processes, Diagnostics and Applications: Fundamentals and Advanced Topics by A. Peled (Hardcover - Dec. 31, 2003)  
ISBN-13: 978-1402075278  
世界各地拥有馆藏的图书馆（OCLC）:75  
6 Introduction to Thermal Analysis: Techniques and Applications (Hot Topics in Thermal Analysis and Calorimetry) by Michael E. Brown (Paperback - Dec. 31, 2001)  
ISBN-13: 978-1402004728  
世界各地拥有馆藏的图书馆（OCLC）:150  
7 Topics in Polymer Physics by Richard S. Stein (Paperback - Mar. 30, 2006)  
ISBN-13: 978-1860944123  
世界各地拥有馆藏的图书馆（OCLC）:152  
8 Asymmetric Organocatalysis (Topics in Current Chemistry) by Benjamin List (Hardcover - Mar. 4, 2010)  
ISBN-13: 978-3642028144  
世界各地拥有馆藏的图书馆（OCLC）:47  
9 Advanced Topics in Theoretical Chemical Physics (Progress in Theoretical Chemistry and Physics) by J. Maruani, Roland Lefebvre, and Erkki J. Brändas (Hardcover - Nov. 30, 2003)  
ISBN-13: 978-1402015649  
世界各地拥有馆藏的图书馆（OCLC）:74  
10  Contrast Agents III: Radiopharmaceuticals - From Diagnostics to Therapeutics (Topics in Current Chemistry) (v. 3) by Werner Krause (Hardcover - Mar. 24, 2005)  
ISBN-13: 978-3540225775  
世界各地拥有馆藏的图书馆（OCLC）:76