STATE UNIVERSITY OF NEW YORK AT BINGHAMTON
DEPARTMENT OF PHYSICS

Syllabus
PHYS. 421, 508
Quantum Mechanics I
Fall 2014 (9/02/14 – 12/12/14)
(Revised September 02, 2014)

Course Objectives: To understand the basic concepts underlying Quantum Mechanics and to be able to independently solve corresponding problems.

CRN: 17079
Credit: 4.00

Instructor:

Masatsugu Sei Suzuki

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Web site http://bingweb.binghamton.edu/~suzuki/research.html
Wikipedia http://en.wikipedia.org/wiki/Masatsugu_Suzuki
Category: American Physicists
http://en.wikipedia.org/wiki/Category:American_physicists

Curriculum Vita of the Instructor

Education: Ph.D. (March 1977) Physics, University of Tokyo, Japan

Positions held

Professor, Department of Physics, State University of New York at Binghamton, Binghamton, New York 13902-6000 (9/86 – present)

Visiting Professor, Institute for Molecular Science, Myodaiji, Okazaki 444, Japan (8/92 - 12/92)

Visiting Scientist, Schlumberger-Doll Research, Ridgefield, Connecticut 06877 (11/85 - 8/86)

Visiting Research Assistant Professor, Department of Physics, University of Illinois at Urbana-Champaign, Urbana, Illinois 61801 (7/84 - 8/86)

Research Associate, Department of Physics, Ochanomizu University, Tokyo, Japan (4/77 - 8/86)

Class hours (lectures):

T, R:	8:30 - 9:55 AM	SW-327	(Lecture)
F	9:40 - 10:40 AM	S2-337	(Discussion)

Office Hours:

M:	12:30 – 2:20 PM	SII 157A
T, R:	10:30 - 11:30 AM	SII 157A

Attendance

If the attendance percentage is less than 40 %, you are not allowed to take the final examination. It means that your grade will be automatically F. I put this condition for the first time since I joined the Department of Physics in 1986, sine some students show up only in the examination in Phys.421/508 (2012 and 2013). I will check the attendance every class. I will also warn students with less than 40% attendance in advance one month before the final examination.

Lecture Notes (Blackboard):

These notes are made from my experience of teaching in Quantum Mechanics since 1986. The contents of the notes are not always the same as those of the textbook (Townsend), and are much more extensive.

Textbook:

John S. Townsend , *A Modern Approach to Quantum Mechanics*, second edition (University Science Books, 2012). ISBN 978-1-891389-78-8

I will also use the following books for the discussion;

David H. McIntyre, *Quantum Mechanics A Paradigms Approach* (Pearson Education, Inc., 2012). ISBN-13: 978-0-321-76579-6

Nouredine Zettili, *Quantum Mechanics, Concepts and Applications*, 2nd edition (John Wiley & Sons, New York, 2009). ISBN 0-471 48943 3.

The problems of Zettili and McIntyre (which will be discussed in the Discussion) will be presented in the Blackboard.

Text Coverage:

We will follow the textbook by Townsend, focussing on selected topics of chapters 1 – 7.

Contents (which are not in order in teaching)

Stern-Gerlach Experiments
Photon polarization
Projection operator
Matrix representation
Hermitian operator
Hermitian conjugate
Unitary operator
Angular momentum of photon
Dirac ket and bra notation
Dirac delta function
Matrices; eigenvalue problem
Angular momentum of photon
Simultaneous eigenkets
$|x\rangle$ and $|p\rangle$ representation
Transformation function and Fourier transform
Commutation relations
Rotation operator and angular momentum
Time evolution operator
Schrodinger picture, Heisenberg picture, and Dirac picture
Translation operator
Parity operator
Coherent state of photon
Squeezed state of photon
Kronecker product
Rotation operator and angular momentum
EPR (Einstein-Podolosky-Rosen) paradox
Bell's inequality
Quantum entanglement
Quantum computation and information
Quantum teleportation
Density operator and density matrix
1D barrier problems
Quantum box
Schwartz inequality
WKB approximation
Alpha particle tunneling
Wave packet for free particles
Group velocity and phase velocity

Neutron interferrometry
Two-spin states
Addition of angular momentum of two spin 1/2 particles
Clebsch-Gordan coefficient
Three-spin states
Spin 1/2 eigenvalue problem
Spin 1 eigenvalue problem
Spin 3/2 eigenvalue problem
Spin precession under a magnetic field
Time evolution operator
Magnetic resonance
NH_3 maser

Chapters 8-14 will be taught in Phys.422 (in Spring 2014).

List of books reserved in the Newcomb Reading Room in the Library North

1. John S. Townsend , *A Modern Approach to Quantum Mechanics*, second edition (University Science Books, 2012). ISBN 978-1-891389-78-8
2. David H. McIntyre, *Quantum Mechanics A Paradigms Approach* (Pearson Education, Inc., 2012). ISBN-13: 978-0-321-76579-6
3. David J. Griffiths, *Introduction to Quantum Mechanics* (Prentice Hall, Englewood Cliff, NJ, 1995). ISBN 0-13-124405-1
4. Stephen Gasiorowicz, *Quantum Mechanics*, third edition (John Wiley & Sons, Inc., New York, 2003). ISBN 0-471-05700-2
5. Richard L. Liboff, *Introductory Quantum Mechanics*, 4th edition (Addison Wesley, New York, 2003). ISBN 0-201-12221-9
6. *Schaum's Outline of Theory and Problems of Quantum Mechanics*, Yoav Peleg, Reuven, and Elyahu Zaarur (McGraw-Hill, New York, 1998). ISBN 0-07-054018-7
7. J.J. Sakurai and J. Napolitano, Modern Quantum Mechanics, second edition (Addison-Wesley, New York, 2011). ISBN 978-0-8053-8291-4
8. Eugen Merzbacher, *Quantum Mechanics*, third edition (John Wiley & Sons, New York, 1998). ISBN 0-471-88702-1
9. Nouredine Zettili, *Quantum Mechanics, Concepts and Applications*, 2nd edition (John Wiley & Sons, New York, 2009). ISBN 0-471 48943 3.
10. Ramamurti Shankar, *Principles of Quantum Mechanics*, second edition (Springer, New York, 1994). ISBN 0-306-44790-8.
11. Claude Cohen-Tannoudji, Bernard Diu, and Franck Laloë, *Quantum Mechanics volume I and volume II* (John Wiley & Sons, New York, 1977).

12. W. Greiner, *Quantum Mechanics An Introduction*, fourth edition (Springer, 2000). ISBN 3-540-67458-6.

References: as Textbook (undergraduate courses)

1. David J. Griffiths, *Introduction to Quantum Mechanics* (Prentice Hall, Englewood Cliff, NJ, 1995). ISBN 0-13-124405-1
2. Stephen Gasiorowicz, *Quantum Mechanics*, third edition (John Wiley & Sons, Inc., New York, 2003). ISBN 0-471-05700-2
3. Richard L. Liboff, *Introductory Quantum Mechanics*, 4th edition (Addison Wesley, New York, 2003). ISBN 0-201-12221-9
4. David Park, *Introduction to the Quantum Theory*, 3rd edition (McGraw-Hill, Inc., New York, 1974). ISBN 0-07-048481-3
5. Nevil F. Mott, *Elementary Quantum Mechanics* (Wykeham Publications (London) Ltd, London, 1972). ISBN 0 85109 270 5
6. Bruce C. Reed, *Quantum Mechanics* (Jones and Bartlett Publications, Boston, 2008). ISBN-13: 978-0-7637-4451-9.
7. *Schaum's Outline of Theory and Problems of Quantum Mechanics*, Yoav Peleg, Reuven, and Elyahu Zaarur (McGraw-Hill, New York, 1998). ISBN 0-07-054018-7
8. A.C. Phillips, *Introduction to Quantum Mechanics* (John Wiley & Sons, New York, 2003). ISBN 0-470-85323-9
9. Amit Goswami, *Quantum Mechanics*, second edition (Waveland Press, Inc., 2003). ISBN 1-57766-321-7
10. P.J.E. Peeble, *Quantum Mechanics* (Princeton University Press, 1992). ISBN 0-691-08755-5
11. B.H. Bransden and C.J. Joachain, *Quantum Mechanics*, second edition (Peason Eduacation, 2000). ISBN-13 978-0-582-35691-7.
12. James Binney and David Skinner, *The Physics of Quantum Mechanics* (Capella Archive, 2008).
13. H. Lüth, *Quantum Physics in the Nanoworld* (Springer, 2009). ISBN 978-3-642-31237-3.
14. P.T. Matthew, *Introduction to Quantum Mechanics* (McGraw-Hill, 1968).
15. D.S. Saxon, *Elementary Quantum Mechanics* (Holden-Day, 1968).
16. G. Troup, *Understanding Quantum Mechanics* (Methuen, 1968)
17. H. Clark, *A First Course in Quantum Mechanics* (Van Nostrand, 1974).
18. R.H. Dicke and J.P. Wittke, *Introduction to Quantum Mechanics* (Addison-Wesley, 1960).
19. J.L. Martin, *Basic quantum mechanics* (Oxford, 1981).
20. A.I.M. Rae, *Quantum Physics A Beginner's Guide* (Oneworld, Oxford, 2005).
21. D.S. Saxon, *Elementary Quantum Mechanics* (Holden-Day, 1968).
22. L. Suskind and A. Friedman, *Quantum Mechanics The Theoretical Minimum* (Basic

Books, 2014)
23. G. Bowman, *Essential Quantum Mechanics* (Oxford, 2008).
24. K.S. Lam, *Non-relativistic Quantum Theory* (World Scientific, 2009).
25. A. Landé, *The Foundations of Quantum Theory* (Yale University Press, 1955).
26. M.S. Rogalski and S.B. Palmer, *Quantum Physics* (Gordon and Breach, 1999).
27. B.C. Reed, *Quantum Mechanics* (Jones and Bartlett, 2008).

References: as Textbook (Historical background)

1. F. Hund, *The History of Quantum Theory* (Harrap, London, 1967).
2. D. Ter Haar, *The Old Quantum Theory* (Pergamon Press, 1967).
3. H.E. White, *Introduction to Atomic and Nuclear Physics* (D. Van Nostrand Company, 1964).
4. J.-M. Levy-Leblond, *Quantics Rudiments of Quantum Physics* (Elsevier Science, 1990).
5. M. Longair, *Quantum Concepts in Physics; An alternative approach to the understanding of quantum mechanics* (Cambridge University Press, 2013).
6. P.A. Cox, *Introduction to Quantum Theory and Atomic Structure* (Oxford, 1996).
7. S. Tomonaga, *Quantum Mechanics vol. I Old Quantum Theory* (North-Holland, 1962).

References: as Textbook (graduate courses)

1. J.J. Sakurai and J. Napolitano, *Modern Quantum Mechanics*, second edition (Addison-Wesley, New York, 2011). ISBN 978-0-8053-8291-4
2. Eugen Merzbacher, *Quantum Mechanics*, third edition (John Wiley & Sons, New York, 1998). ISBN 0-471-88702-1
3. Leonard Schiff, *Quantum Mechanics* (McGraw-Hill Book Company, Inc, New York, 1955).
4. David. Bohm, *Quantum Theory* (Dover Publication, Inc, New York, 1979).
5. Albert Messiah, *Quantum Mechanics*, vol.I and vol.II (North-Holland, 1961).
6. Ramamurti Shankar, Principles of Quantum Mechanics, second edition (Springer, New York, 1994). ISBN 0-306-44790-8.
7. Claude Cohen-Tannoudji, Bernard Diu, and Franck Laloë, *Quantum Mechanics*, volume I and volume II (John Wiley & Sons, New York, 1977).
8. Nouredine Zettili, *Quantum Mechanics*, Concepts and Applications, 2nd edition (John Wiley & Sons, New York, 2009). ISBN 0-471 48943 3
9. F. Schwabl, *Quantum Mechanics*, 4-th edition (Springer Verlag, Berlin, 2007). ISBN 978-3-540-71932-8
10. Gordon Baym, Lectures on Quantum Mechanics (Westview Press, 1990). ISBN 0-8053-0667-6
11. G. Auletta, M. Fortunato, and G. Parisi, *Quantum Mechanics* (Cambridge University Press, 2009). ISBN-13 978-0-521-86963-8

12. W. Greiner, *Quantum Mechanics An Introduction*, fourth edition (Springer, 2000). ISBN 3-540-67458-6.
13. M.L. Bellac, *Quantum Physics* (Cambridge University Press, 2006).
14. A.Z. Capri, 3rd edition, *Nonrelativistic Quantum Mechanics* (World Scientific, 2002).
15. A. Das, *Lecture on Quantum Mechanics* (World Scientific, 2012).
16. J.L. Basdevant and J. Dalibard, *Quantum Mechanics* (Springer, 2002).
17. W. Pauli, *General Principles of Quantum Mechanics* (Springer-Verlag, 1980).
18. F. Scheck, *Quantum Physics* (Springer, 2007).

References; Textbooks (Advanced courses)

1. Paul .A.M. Dirac, *The Principles of Quantum Mechanics*, 4-th edition (Oxford University Press, Oxford, 1958).
2. Werner Heisenberg, *The Principles of the Quantum Theory* (Dover Publications, Inc., New York, 1949).
3. Albert Messiah, *Quantum Mechanics* (Dover Publications, Inc., New York, 1999).
4. Julian Schwinger, *Quantum Mechanics* (Springer, Berlin, 2001). ISBN 3-540-41408-8
5. Richard P. Feynman and Albert R. Hibbs, *Quantum Mechanics and Path Integrals*, emended by Daniel F. Styer, Emended edition (Dover Publications, Inc. New York, 2010).
6. J.D. Bjorken and S.D. Drell, *Relativistic Quantum Mechanics* (McGraw-Hill Book Company, New York, 1964).
7. J.J. Sakurai, *Advanced Quantum Mechanics* (Addison-Wesley, New York, 1967).
8. A.S. Davydov, *Quantum Mechanics* (Pergamon Press, Oxford, 1965).
9. L.D. Landau and E.M. Lifshitz, *Quantum Mechanics* (Pergamon Press, Oxford, 1977).
10. A. Messiah, *Quantum Mechanics*, vol.I and vol.II (North-Holland, 1961).
11. S.S. Schweber, *An Introduction to Relativistic Quantum Field Theory* (Row, Peteson and Company, Evanston, Illinois, 1961).
12. S. Weinberg, *Lectures on Quantum Mechanics* (Cambridge University Press, 2013). ISBN 978-107-02872-2
13. Dick Rainer, *Advanced Quantum Mechanics* (Springer, 2011). ISBN 978-1-4419-8076-2
14. Freeman J. Dyson, *Advanced Quantum Mechanics* (World Scientific, 2007). ISBN-13 978-981-270-622-5.
15. F. Schawabl, *Advanced Quantum Mechanics* (Springer, 2000). ISBN 3-540-67730-5
16. R.G. Newton, Quantum Physics: A Text for Graduate Students (Springer 2002).
17. S. Tomonaga, Quantum Mechanics vol. II New Quantum Theory (John Wiley & Sons, 1966).
18. M. Olshanii, Back-of-the Envelope Quantum Mechanics (World Scientific, 2014).
19. J.A. Wheeler and W.H. Zurek, Quantum Theory and Measurement (Princeton University Press, 1983).
20. D. Dürr and S. Teufel, Bohmian Mechanics The physics and Mathematics of Quantum

Theory (Springer, 2009).

References: Textbooks (quantum entanglement)

1. A.D. Aczel, *Entanglement the great mystery in physics* (Four Walls Eight Windows, New York, 2002).
2. M. Le Bellac, *A Short Introduction to Quantum Information and Quantum Computation* (Cambridge, 2006).
3. J. Audretsch, *Entangled Systems New Directions in Quantum Physics* (Wiley-VCH, 2006).
4. P. Lambropoulos, *Fundamentals of quantum optics and quantum information* (Springer, 2007).
5. N.D. Mermin, *Quantum Computer Science* (Cambridge, 2007).
6. G. Jaeger, *Quantum Information An Overview* (Springer, 2007).
7. S. M. Barnett, *Quantum information* (Oxford University Press, 2009).

Mathematica 10.0: (not required):

You can get a Mathamatica 10.0 from the on-line. Binghamton University has a license for the Mathematica 10.0. The SUNY system gets a license to use the Mathematica 10.0 for all students and faculties in the Binghamton University. I will show how to use the Mathematica 10.0 during the class. As a part of the demonstration, I will also show the programs which I will make.

Examinations:

Calculator: Students are allowed to use a programmable calculator during the examinations. Three one-hour (1 hour) exams will be given during the classes (discussion). A required final examination will be given during examination week. Quizzes will be given in discussion. You may bring one 3"x5" file card hand written on one side with any material you see fit into each 1 hour examination. All the examination problems will be chosen mainly from home works and SP (selected problems which are specified in advance).

Homeworks:

All the homeworks are chosen from the problems in the text book (Townsend 2nd edition). Homework solutions should be submitted before the due date. The problem numbers for each homework are listed below.

SP (selected problems) solution

I want you to solve all the problems of the textbook. However, since there are so many problems in the textbook, I put the solutions of the selected problems of the textbook in the Blackboard. So you can solve the problems by yourself and compare your solution with the solutions of Townsend and mine. These SP solutions will help you in solving the homework problems.

Exams:

There are three Hour Exams and one final exam. All problems will be chosen from both the homeworks and specified problems of SP. I will let you know the detail before each examination. The problems of the examinations are not always the same. I will modify the problems and add several questions.

Final Grade Determination:

Your final grade will be based on an absolute scale. Your final grade will be based on the three one-hour examinations (actually two Exams out of three Exams), the final exam, the lab grade, the home work grade, and the discussion grade as follows:

200 points	for best two of the three one-hour exams (see below)
200 points	for the final exam
50 points	for the discussion grade (Quiz)
100 points	for the home work
50 points	attendance for lecture class
600 points	total possible points for the course

There will be no make-up examinations:.

To accommodate a personal "crisis" coinciding with the day of an examination, such that a student misses the examination or performs below his or her normal level, one of the hour exam grades will be dropped. No excuse is necessary for missing or doing poorly on the hour exam which will not be counted - you could break your leg, be "sick" from a party, your alarm clock fails, etc. - regardless of the excuse, your worst 100 examination points will not be counted. THE FINAL EXAM MUST BE TAKEN.

Grade:

Your final grade will be determined by the percentage of 600 total points you manage to attain. These grades may change depending on the graph of the number of people vs total points such as Gaussian distribution with a single peak or double peaks.

85-100	A
80-84	A^-
75-79	B^+
70-74	B
65-69	B^-
60-64	C^+
55-59	C
50-54	C^-
40-49	D
0-39	F

Discussion:

In discussion, concepts presented in lecture will be reviewed and new concepts and approaches to problem solving may be introduced. Try to use these sessions to get your questions answered. Your discussion grade will be based on: your performance in a series of short quizzes, and, possibly, on a judgment based upon your participation in discussion. The evaluation will be made from quizzes and attendance.

We discuss the solution of selected problems (nice problems) which are chosen from textbooks (Townsend, McIntyre, Zettili). All the problems will be listed in the **Blackboard**.

Exam solutions:

Solutions for examinations will be posted on Blackboard.

Blackboard:

We have established a system where you can access exam solutions and administrative announcements from any on or off campus computer.

Announcements, Lecture note, Solutions of homeworks, Mathematica programs, Web site links, E-mail, and so on

Time Guidelines:

We expect that you will spend a minimum of ten hours each week outside of class working on the course. You should spend twenty minutes before each lecture scanning the textbook to get an idea as to what we will be covering in the lecture and the approach we will be using. This small investment of time will pay dividends in making the time spent in lecture more useful in the learning process. After each lecture, you should spend one hour learning the material covered in the lecture by reviewing your lecture notes and reading the textbook in detail. Each assigned problem set should take about three hours to complete; In this course, you cannot skip a week's worth of work and double up the time spent the following week. Cramming and pulling an "all nighter" to prepare for an examination is effectively dooming yourself to non-success. Success is produced by not getting behind and doing something everyday.

Disclaimer:

We reserve the right to alter conditions and items found in this document at any time in the course of the semester using an announcement made in a scheduled lecture session and a Blackboard.

Students with disabilities:

If you are a student entitled to extra time on examinations or some other accommodation, you must see us before the accommodation can be made for you. You must bring the appropriate letter from the Services for Students with Disabilities Office along with you.

Students in Intercollegiate Sports:

It is the responsibility of students participating in intercollegiate athletics and thereby must be away from campus to make up any assigned work. You must make appropriate arrangements with your instructor (lab, discussion, or lecture) in advance.

Examination re-grading policy:

If after reviewing the posted examination solutions, you believe you deserve more points for a given problem, you must submit a written explanation of why you deserve more credit for the problem. The note must also include a signed statement that you have made no changes on the item in question. We will have copied approximately a quarter of the exams submitted. If a change has been made on an answer resubmitted, you will receive a zero on the exam and be referred to the Arts and Sciences academic honesty committee. The request for a re-grade is to be submitted to either your instructor or your discussion leader. **The request should be made within one week after you receive your exam sheet.**

Important Remarks and Advice:

1. We are aware that this course will cover a lot of ground and will be a lot of work for you.
2. Keep up with your work.

Read the appropriate sections of the text, once, before the lecture. As soon as possible after lecture, go over your notes and the text.

4. Do the problems! It is the only true test of whether you really understand the physics.
5. For each topic, collect a set of typical problems you can solve associated with that topic. Remember how you solve them.
6. Compare and integrate what you see in the text, lecture, discussion, lab, and the assigned problems. It is all part of one course, and the better you see how the pieces fit together, the more sense it will make.
7. The person who has the biggest part in determining what you will get out of this course (abilities, knowledge, and grade) is YOU.

Our Suggestions for Success in the Course:

Come to class. There is little we can do to help you learn the subject if you are not there.

When you are in class, do something productive. Take notes. Writing down the material is the first mechanical link to learning.

Within a day, review your notes, rewrite if necessary, compare your notes with the development in the textbook, and make sure you understand the examples worked.

Start the homework well before it is due. If you are having difficulty; ask your discussion leader, come to an office hour, or access one of the Mastering Physics hints. It is impossible to provide you help if you start an assignment two hours before the time it is due.

Make sure you can eventually do all homework problems and examples worked **WITH YOUR**

BOOK CLOSED, OR WITH YOUR COMPUTER SCREEN DARK. You are not doing Physics "Appreciation"; you have to do the physics yourself. This is the place where most students have extreme difficulties.

Schedule of Classes in Phys.421 and Phys.508 (Fall 2014):

	Date	Topics
Week-1	2 September T	Lecture-1 Chapter-1
	4 September R	Lecture-2 Chapter-1
	5 September F	Lecture-3 Chapter-1
Week-2	9 September T	Lecture-4 Chapter-1
	11 September R	Lecture-5 Chapter-2
	12 September F	Discussion-1 Quiz-1 Recess 1:00 PM Yom Kipper
Week-3	16 September T	Lecture-6 Chapter-2
	18 September R	Lecture-7 Chapter-2
	19 September F	Lecture-8 Chapter-2
Week-4	23 September T	Lecture-9 Chapter-3
	25 September R	Recess
	26 September F	Recess
Week-5	30 September T	Lecture-10 Chapter-3
	02 October R	Lecture-11 Chapter 3
	03 October F	Hour exam-I (Chapters 1 and 2) Recess 1:00 PM
Week-6	07 October T	Lecture-12 Chapter-3

	9 October R	Lecture-13 Chapter-4
	10 October F	Discussion-2 Quiz-2
Week-7	14 October T	Lecturte-14 Chapter-4
	16 October R	Lecture-15 Chapter-4
	17 October F	Discussion-3 Quiz-3
Week-8	21 October T	Lecture-16 Chapter-4
	23 October R	Lecture-17 Chapter-5
	24 October F	Discussion-4 Quiz-4
Week-9	28 October T	Lecture-18 Chapter-5
	30 October R	Lecture-19 Chapter-5
	31 October F	Hour exam II (Chapters 3 and 4)
Week-10	04 November T	Lecture-20 Chapter-5
	06 November R	Lecture-21 Chapter-5
	07 November F	Discussion-5 Quiz-5
Week-11	11 November T	Lecture-22 Chapter-6
	13 November R	Lecture-23 Chapter-6
	14 November F	Discussion-6 Quiz-6
Week-12	18 November T	Lecture-24 Chapter-6
	20 November R	Lecture-25 Chapter-6
	21 November F	Discussion-7 Quiz-7

Week-13	25 November T	Lecture-26 Chapter-7
	27 November R	No class (Thanksgiving Day)
	28 November F	No class (Thanksgiving Day)
Week-14	02 December T	Lecture-27 Chapter-7
	04 December R	Lecture-28 Chapter-7
	05 December F	Hour Exam-III Chapters 5, 6
Week-15	9 December T	Lecture-29 Chapter-7
	11 December R	Lecture-30 Chapter-7
	12 December F	Discussion-8 Quiz-8
Final Exam	17 December,	Final Exam 8:00 - 10:00 AM (SII 337) (Chapters 1 – 7 from Townsend)

Homework Assignments

Name	Chapter	Problems	Due date
HW01	Chapter 1	Townsend 2, 3, 4, 6	9/09/14 (T), 3:00 PM
HW02	Chapter 1	Townsend 8, 10,12, 14	9/16/14 (T), 3:00 PM
HW03	Chapter 2	Townsend 2, 4, 6, 10	9/23/14 (T), 3:00 PM
HW04	Chapter 2	Townsend 12, 14, 20, 22	9/30/14 (T), 3:00 PM
HW05	Chapter 3	Townsend 2, 3, 5, 7	10/07/14 (T), 3:00 PM
HW06	Chapter 3	Townsend 10, 12, 14, 17	10/10/14 (F), 3:00 PM
HW07	Chapter 3	Townsend 18, 20, 22, 24	10/14/14 (T), 3:00 PM
HW08	Chapter 4	Townsend 1, 4, 5, 6	10/17/14 (F), 3:00 PM

HW09	Chapter 4	Townsend 8, 10, 11, 12	10/21/14 (T), 3:00 PM
HW10	Chapter 4	Townsend 13,14, 15, 16	10/24/14 (F), 3:00 PM
HW-11	Chapter 5	Townsend, 1, 3, 5, 6	10/28/14 (T), 3:00 PM
HW-12	Chapter 5	Townsend, 8, 10, 12, 13	11/04/14 (T), 3:00 PM
HW-13	Chapter 5	Townsend, 16, 18, 21, 24	11/11/14 (T), 3:00 PM
HW-14	Chapter 6	Townsend, 2, 4, 5, 6	11/14/14 (F), 3:00 PM
HW-15	Chapter 6	Townsend, 8, 10, 12, 14	11/18/14 (T), 3:00 PM
HW-16	Chapter 6	Townsend, 17, 19, 21,24	11/25/14 (T), 3:00 PM
HW-17	Chapter 7	Townsend, 2, 4, 5, 6	12/02/14 (T), 3:00 PM
HW-18	Chapter 7	Townsend 8, 10, 11, 12	12/9/14 (T), 3:00 PM
HW-19	Chapter 7	Townsend 14, 16, 18	12/12/14 (F), 12:00 PM

SP (selected problems in Townsend) solutions
The solutions are listed in the Blackboard

Chapter-1 1, 5, 9, 11, 13, 15
Chapter-2 1, 3, 5, 7, 9, 10, 11, 13, 15, 16, 17, 18, 19, 21, 23, 24
Chapter-3 1, 4, 6, 8, 9, 11, 13, 15, 16, 19, 21, 22, 23, 25, 26, 27
Chapter-4 2, 3, 7, 9
Chapter-5 2, 4, 7, 9, 14, 15, 17, 19, 20, 22, 23, 25, 26, 27, 28, 29
Chapter-6 1, 3, 7, 9, 11, 13, 15, 16, 18, 20, 22, 23, 25
Chapter-7 1, 3, 7, 9, 13, 15, 17, 19, 20, 21, 22, 23,24

Fall Semester 2014

Aug 29	Graduate student pre-semester registration, fall 2014
Aug 29	Undergraduate pre-semester registration, fall 2014
Aug 28	Residence halls open for new students 9 a.m.
Aug 29	Residence halls open for returning students 9 a.m.
Sept 2	Classes begin
Sept 12	Course add deadline*
Sept 12	Course drop/delete deadline*
Sept 24	Classes recess at 1 p.m.
Sept 24	Residence halls close 2 p.m.
Sept 25-26	No classes (Rosh Hashanah)
Sept 28	Residence halls open 2 p.m.
Sept 29	Classes resume
Oct 3	Classes recess 1 p.m. (Yom Kippur)
Oct 6	Classes resume
TBD	Registration and academic advising for spring 2015
Oct 31	Course withdraw (with a "W")/change grade option deadline*
Oct 31	Last day for seniors to submit an application for degree for fall 2014
Nov 26	Classes recess 1 p.m.
Nov 26	Residence halls close 2 p.m.
Nov 27-28	No classes (Thanksgiving)
Nov 30	Residence halls open 2 p.m.
Dec 1	Classes resume
Dec 12	Last day of classes
Dec 13-14	Reading Period
Dec 14	Fall Commencement ceremony
Dec 15-19	Final examinations
Dec 20	Residence halls close 11 a.m.

* Courses meeting less than the full semester have proportionately adjusted deadlines

CALENDAR SUBJECT TO REVISION
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