

Chemistry 140A
Fall, 2009
(Prof. C. L. Perrin)

APPROXIMATE COURSE SCHEDULE AND
SUGGESTED READINGS IN VOLLHARDT & SCHORE, 5th ed.

READ IN ADVANCE the sections assigned below, as well as the "Keys to the Chapter" in the Study Guide. The sections "Important Concepts" and "New Reactions" at the end of chapters are especially helpful in organizing the material. You are not responsible for history, for personalities, for the stories in the "Chemical Highlight" sections ("Boxes"), or for the captions to photographs, but you will enjoy reading some of this material. The publisher's animations at <http://bcs.whfreeman.com/vollhardtschore5e> may be informative, and you do not need your Instructor's email to access them. You may also find the eBook version of the textbook helpful.

Do as many exercises and problems as you have time for (more than just those with a "!"), but you may not wish to do all of those listed below. Many are trivial drill that you should persist with until you feel confident that you *could* do the rest. The "arithmetic" ones are not assigned, but they may be instructive. So choose to do exercises and problems to help you understand and to help extend your understanding. Do the exercises within the chapter as you read, and do the problems at the end of each chapter, which are especially recommended, after the relevant lectures. Your answers are not to be handed in, so you are encouraged to collaborate with other students. The answers are not important in themselves, so don't just look them up! What is important is the understanding that the exercises and problems test for and the method of thinking that they demonstrate.

Key to symbols:

- ! = difficult or important or both; don't just skim
- () = for your enjoyment or general edification
- + = plus additional material in lecture
- = partial coverage (pay attention to emphasis in lecture, skim text if unclear)
- ? = don't believe all you read (or misprint in Exercise, Problem, or Answer)
- X = except

Sep. 25, 28(guest lecturer), 30, Oct. 2: **CHAPTER 1** (Use Lewis *or* Kekulé, **with** lone pairs.)

Sections: Preface(pp xx-xxvii)!, (0), (1!), 2±, 3!-, 4!+, 5+!, 6!-, 7+!, 8±!, 9!

Exercises: 1b!("Memorize", or include on Reminder Sheet), (2), 3, 4?, 6!, 7, 8a(b), 9, (12), 13, 15!, (16), (17), 18

Problems: 19, 20, 21!, (22), 23, (24), 25!, 26, 27!?(nonoctet unnecessary), 28-, (30ab), 31!Xg, 33, 37!, 38!, 39, 40ab(c), 42, (43), 44!Xi, (45), (46), 47, 48, 49, 50

Oct. 5, 7, 9: **CHAPTER 2**

Sections: (0), 1-, 2!, Table2!("Memorize"), 3, Table3!("Memorize"), 4, Table5("Memorize" names to $n=10$), Table6("Memorize"), [*Nomenclature*: Be sure that you can draw the correct structure from a molecule's name. For 140A you need not learn how to provide the correct name.], 6, 7!, 8!

Exercises: (1), (2), (3), (4), (5), 6, 7, 8a(b), 9, (11), 12a!(b), (13), 14, 15, 16, 17, 18ab, 19

Problems: (22), 23Xiii, 24, (25), 26!, 27!, (28), (29), (30), (31), 32-, 33, 34-, 35, 36, 39, (41), (42), (43), 46, 47, 48, 49

Oct. 12, 14, 16: **CHAPTER 3**

Sections: 0, 1!, Table1("Memorize"), 2+!, (3), Fig3-4, 4±!, 5-, 6-, 7-, 8, (9), 10-

Exercises: 2, 3a(b), 4, (5), 6a(b), 7a(b), 9!

Problems: 11a(b), 13, 14Xname,orbitals, (17), 18!, 19a, 20!, 21a(bc), 22!, 24, 25a(bc), 29bc, (30), (31), (34), 35, 41, 43, 44

Oct. 19 (Monday): **MIDTERM EXAM**, covering CHAPS. 1-3.6 (and to Problem 3-21).

Oct. 21, 23: **CHAPTER 4**

Sections: 0, 1⁻, 2⁻, 3⁻, 4, 5, 6⁻, (7)

Exercises: (1), 2⁻, 3, (6), (7), (8), 9!, (10), (11), 12, (13), 14

Problems: 15[!]ab(c), 17!, (18), 19!, 23!, 25!, (28), (30), 34a(b), 36, (38), (41), (44), 47, 48, 49, 50

Oct. 23 (notice!), 26, 28, 30, Nov. 2: **CHAPTER 5**

Sections: 0!, Figure1("Memorize"), 1!⁺ (Box1), 2!⁻, 3! (Box2), (4)[Warning: Do not use Fischer projections!], 5!, 6?⁺, 7!⁺ (Box4), 8 (Box5)

Exercises: 1, 3, (4), 5!, (6), (7), 8, 9!, 10, 15b, 16bcd, 17^{zigzag}, asFig.2-4e, 19?, 20?, 21, 22, 23!

Problems: (throughout, no "bowties!") 24!, 25, (26), (27), 28!, 29!, 30, 31?, 32, 33⁻, 34!, 35, 36, 37!, 38, 39⁻, 43, 44abc(d), 46a, 49⁻, 50!, 51!, 52, 53, 54!, 55!, 56?(N in a), 57, 58, 63Xc

Nov. 4, 6: **CHAPTER 6**

Sections: 0, 1⁻, 2!, Table3!, 3!, 4, 5, 6, 7!, Table4!, 8!, Table7examples!, 9

Exercises: 1!, 2, 3!, 4, 5, 6, 7, (8), 9, 10!, 11, 12!, (13), 15, 16, 17, 18, 19, 20, 21, 22!, 23, 24

Problems: 25, 26ab, 28, 29⁻, 30⁻, 31, 32!, 34, (35), 36, 37Xa, 38, 39!, 40!, 41Xb, 42, 43!, (45), (46), 47!, 48, 49, 50, 52!, 55, 56, 58, 59

Nov. 9, 13: **CHAPTER 7**

Sections: 0, 1, 2, 3?, 4, 5⁺, Table2("Memorize"), 6, 7, 8, 9!, Table4("Memorize")

Exercises: 1, (2), 3, 4, 5, 6, 7, 8, 9, 10, (11), 12, 13ab, 14, 15, 16, 17, 18, 19

Problems: 20, 22, 23!, 24, 25, 27, 28, 29, 30, 31, 32, 34, 35abcd?, 36!, 37Xc, 38Xh, 40?, 41!, 42, 43, 44!, 47, (48), (49), (51), 52, 53, 54, 56, 57, 58, 59, 60

Nov. 16 (Monday): **MIDTERM EXAM**, covering CHAPTERS 1-7.6 (and to Prob. 7-34,44Xd,51,58,59).

Nov. 18, 20, 23: **CHAPTER 8**

Sections: 0, 1⁻, 2, 3, (4), 5, 6! (Box1), 7! (Box2), 8!, 9!

Exercises: 1, (2), 3, 4, (5), 6, 7!, 9, 10?, 11, 12, 13, 14!, 15, (16), 17?, 18!

Problems: 19, (20), 22, (25), 27bc, 28, (30), 31, 32(a)bce, 33, 34, 35!, (36), 37, 38, 39, 40!, 41, 42, (43), 44, 45!, 46, 47, 48, 49, 50, 51, (52), (53), (54), (55), (57), 59, 60

Nov. 23 (notice!), 25, 30, Dec. 2: **CHAPTER 9**

Sections: 0, 1, 2, 3!, 4⁻, 5⁻, 6, 7, 8, Box2, 9⁻, 10⁻, (11) (Box4)

Exercises: 1, 2, 3, 4, 5, 6, 7!, 8, 9, 10!, 11, 12, 13!, 14!, 15!, 16, 17, 18!, 19, 20, 21, 22(a)b

Problems: 23!, 24!, 25, 26, 27?, 28, 29, 30, 32, 33, 34!, 35!, 36!, (38), 39!, 40, 41, 42a, 43, 44?, 45, 46!, (47), 48, 49, 50b, 52, 53, 54!, 55, 58, 59!, 60, (61), (62), (63), (64), (65), 70, 71, 72

Dec. 4: Margin of Safety/Review

Dec. 8 (Tuesday), 1:30 AM - 2:30 PM: **FINAL EXAM**, covering CHAPTERS 1-9, in Mandeville Auditorium (subject to availability).

APPROXIMATE COURSE SCHEDULE AND
SUGGESTED READINGS IN VOLLHARDT & SCHORE, 4th ed.

This list is for students who have bought the 4th edition, which differs little from the 5th. However, the addition/deletion of a small number of exercises and problems creates discrepancies in numbering of assignments. If you use the 4th edition you will not always be able to ask questions or follow answers in section or at the Discussion Forum on WebCT, and it will be your responsibility to figure out the correspondence.

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- ! = difficult or important or both; don't just skim
- () = for your enjoyment or general edification
- + = plus additional material in lecture
- = partial coverage (pay attention to emphasis in lecture, skim text if unclear)
- ? = don't believe all you read (or misprint in Exercise, Problem, or Answer)
- X = except

Sep. 25, 28(guest lecturer), 30, Oct. 2: **CHAPTER 1** (Use Lewis *or* Kekulé, **with** lone pairs.)

Sections: Preface(pp xxi-xxviii)!, (0), (1!), 2±, 3!-, 4!+, 5+!, 6!-, 7+!, 8±!, 9!

Exercises: 1b!("Memorize", or include on Reminder Sheet), (2), 3, 4?, 6!, 7, 8, 9, (12), 13, 14!, (15), (16), 17

Problems: 18, 19, 20!, (21), 22, (23), 24!, 25, 26!(nonoctet unnecessary), 27-, (29ab), 30!Xg, 32, 36!, 37!, 38, 39ab(c), 41, (42), 43!, (44), (45), 46, 47, 48, 49

Oct. 5, 7, 9: **CHAPTER 2**

Sections: (0), 1-, 2!, Table2!("Memorize"), 3, Table3!("Memorize"), 4, Table5("Memorize" names to $n=10$), Table6("Memorize"), [*Nomenclature*: Be sure that you can draw the correct structure from a molecule's name. For 140A you need not learn how to provide the correct name.], 6, 7!, 8!

Exercises: (1), (2), (3), (4), (5), 6, 7, 8a(b), 9, 11a!(b), (12), 13, 14, 15, 16, 17ab, 18

Problems: (21), 22Xiii, 23, (24), 25!, 26!, (27), (28), (29), (30), 31-, 32, 33-, (34), 35, 38, (40), (41), (42), 45, 46, 47, 48

Oct. 12, 14, 16: **CHAPTER 3**

Sections: 0, 1!, Table1("Memorize"), 2+!, (3), Box1, 4±!, 5-, 6-, 7-, 8, (9), 10-

Exercises: 2, 3a(b), 4, (5), 6a(b), 7a(b), 9!

Problems: 11a(b), 13, 14Xname,orbitals, (17), 18!, 19a, 20!, 21a(bc), 22!, 24, 25, 27bc, (28), (29), (32), 33, 41, 43, 44

Oct. 19 (Monday): **MIDTERM EXAM**, covering CHAPS. 1-3.6 (and to Problem 3-21).

Oct. 21, 23: **CHAPTER 4**

Sections: 0, 1!, 2-, 3!, 4, 5, 6-, (7)

Exercises: (1), 2-, 3, (5), (6), (7), 8!, (9), (10), 11, (12), 13

Problems: 14!ab(c), 16!, (17), 18!, 22!, 24!, (27), (29), 32a(b), 34, (36), (39), (42), 45, 46, 47, 48

Oct. 23 (notice!), 26, 28, 30, Nov. 2: **CHAPTER 5**

Sections: 0!, Figure1("Memorize"), 1!+ (Box1), 2!-, 3! (Box2), (4)[Warning: Do not use Fischer projections!], 5!, 6?+, 7!+ (Box4), 8 (Box5)

Exercises: 1, 3, (4), 5!, (6), (7), 8, 9!, 10, 15b, 16bcd, 17zigzag, asFig.2-4e, 19?, 20?, 21, 22, 23!

Problems: (throughout, no "bowties!") 24!, 25, (26), (27), 28!, 29!, 30, 31?, 32, 33!-, 34!, 35, 36, 37!, 38, 39-, 43Xe, 44a, 48!-, 49!, 50!, 51, 52, 53!, 54!, 55?(N in a), 56, 57, 62Xc

Nov. 4, 6: **CHAPTER 6**

Sections: 0, 1-, 2!, Table3!, 3!, 4, 5, 6, 7!, Table4!, 8!, Table7examples!, 9

Exercises: 1!, 2, 3!, 4, 5, 6, 7, (8), 9, 10!, 11, 12!, (13), 15, 16, 17, 18, 19, 20, 21, 22!, 23, 24

Problems: 25, 26ab, 28, 29-, 30!-, 31, 32!, 34, (35), 36, 37Xa, 38, 39!, 40!, 41Xb, 42, 43!, (44), 45!, 46, 47, 48, 50!, 53, 54, 56, 57

Nov. 9, 13: **CHAPTER 7**

Sections: 0, 1, 2, 3?, 4, 5+, Table2("Memorize"), 6, 7, 8-, 9!, Table4("Memorize")

Exercises: 1, (2), 3, 4, 5, 6, 7, 8, 9, 10, 13ab, 15, 16, 17, 18, 19

Problems: 22, 23!, 24, 27, 28, 29, 30, 31, 32, 34, 35abcd?, 36!, 37Xc, 38Xh, 40?, 41!, 42, 43, 44!, 47, (48), (49), 51, 55, 56, 57, 58, 59

Nov. 16 (Monday): **MIDTERM EXAM**, covering CHAPTERS 1-7.6 (and to Prob. 7-34, 44Xd, 51, 58, 59).

Nov. 18, 20, 23: **CHAPTER 8**

Sections: 0, 1-, 2-, 3, (4), 5, 6! (Box1), 7! (Box2), 8!, 9!

Exercises: 1, (2), 3, 4, 6, 7!, 9, 10, 11, 12, 13, 14!, 15, (16), 17?, 18!

Problems: 19, (20), 22, 26bc, 27, (29), 30, 31(a)bc(e), 32, 33, 34!, (35), 36, 37, 38, 39!, 40, 41, (42), 43, 44!, 45, 46, 47, 48, 49, 50, (51), (52), (53), (54), (55), 57

Nov. 23 (notice!), 25, 30, Dec. 2: **CHAPTER 9**

Sections: 0, 1, 2, 4-, 5-, 6, 7, 8-, Box2, 9-, 10-, (11) (Box4)

Exercises: 1, 2, 3, 9, 10!, 11, 12, 13!, 14!, 15!, 16, 17, 18!, 19, 20, 21abc, 22(a)b

Problems: 24!, 25, 26, 29a-e, 30acdf, 33, 34!Xh, 35a-c, i-n!, 36!, (38), 39!, 40, 41, 42a, 43, 44?, 45be, 46!, (47Xd), 48, 49b, 51, 52, 53!, 55, 56, 57!, (61), (62), (63), 70, 71, 72

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