Summer 2010

Student Information and schedule:

Lab meets by assigned sections, SC128

Lab texts: (1) Organic Chem Lab Manual, Departmental publication

Other needed items: safety glasses and laboratory notebook.

Attendance: You must be at all scheduled labs. No makeups since this is a summer course. *Arrive promptly.* Lateness results in a grade penalty.

Grading: 8 (or 9) experiments, 1 quiz, lab notebook: total 10 grades, all count equally. The lab grade is 25% of the overall course grade. The grade on a given experiment is a combination of (1) product yield and quality, and (2) the laboratory report for the experiment. Safety or procedural violations may carry grade deductions.

Restrictions: Any student who is *pregnant* can not work in this laboratory. Any student with a *documented disability* or impairment must inform the instructor during the first week before experimentation.

Safety rules: These are discussed during the first laboratory meeting of each section, and you must sign a verification that you understand the rules. (see pp. 3-4 in the lab packet). Safety violations result in grade reductions of increasing magnitude, and continuous violators may be dropped from the laboratory part of the course. The instructor has complete authority.

Lab reports: Each experiment requires a lab report to be submitted, usually at beginning of lab period following completion of the experiment after the product has been turned in. Check the schedule of activities to see when reports are due. Late reports carry a 10% grade penalty. A report is NOT accepted after graded reports have been returned.

Honor code and plagiarism: Lab reports are expected to be your own work, not copied from other students' work. Calculations, answers to questions, and procedure summaries are to be your own work.

Lab notebook: This will be discussed at the first meeting of your section.

Schedule of experimentation, with lab packet ref. pages and due dates.

<u>Day</u>	<u>/ of</u>	<u>experimentation</u> <u>r</u>	ef. pages
18 [May	check-in to lockers, lecture on procedures, safety	1-8
20 [May	1 Recrystallization and melting points	
25 N	⁄lay	complete recrystallization, take mp and turn in produce 2 Distillation Experiment	ot; 15-17
27	May	3 Synthesis of 1-Bromobutane	24-26
01、	Jun	Complete 1-bromobutane, weigh and turn in product Lecture on oxidation-reduction balancing 4 Side chain oxidation of mandelic acid	24-26 39-42 39-42
03、	Jun	Weigh and turn in benzoic acid product from mandelic acid oxidation.	:
		5 Dehydration of 2-methylcyclohexanol (students will work in pairs on this experiment)	30-34
80	Jun	Dehydration of 2-methylcyclohexanol And gas chromotography	30-34
10	Jun	6 Aldol Condensation: Anisalacetophenone and recrystallization	56-59
15	Jun	weigh, take mp, and turn in product Tetraphenylporphin (7)	
17	Jun	8 (or 7) Esterfication: synthesis of Methyl Benzoate	48-51
22	Jun	Complete methyl benzoate preparation, turn in produc	et.
24	Jun	9 (or 8) Diels-Alder reaction: synthesis of (hando exo-7-oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic ar Lab Quiz	,
TBA		Check-out of lockers: all students must check out. You was billed for broken and missing items.	vill be

May 18 Check In Lab safety lecture, Policies May 25 Distillation Experiment Complete mp and turn in report. Jun 1 Complete 1-bromobutane, weigh and turn in product Lecture on oxidation-reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2-methylcyclohexanol Jun 15 Jun 15 Weigh, take mp, and turn in product Weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product Lab Notebooks due	Mon.	Tue.	Wed.	Thur.	Fri.
Check In Lab safety lecture, Policies May 25 Distillation Experiment Complete mp and turn in report. Jun 1 Complete 1-bromobutane, weigh and turn in product Lecture on oxidation-reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2-methylcyclohexanol Jun 15 Jun 15 Jun 15 Weigh, take mp, and turn in product Weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout TBA Checkout Recrystalization and Melting points May 27 Synthesis of 1- bromobutane Distillation report due Veigh and turn in benzoic acid product from mandelic acid oxidation. Dehydration of 2-methylcyclohexanol Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Piels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2		May 18		May 20	
May 25 Distillation Experiment Complete mp and turn in report. Jun 1 Complete 1-bromobutane, weigh and turn in product Lecture on oxidation-reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2-methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 Jun 15 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of 1-bromobutane Distillation report due Jun 3 Weigh and turn in benzoic acid product from mandelic acid oxidation. Dehydration of 2-methylcyclohexanol Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2		Check In			
Distillation Experiment Complete mp and turn in report. Jun 1 Complete 1-bromobutane, weigh and turn in product Lecture on oxidation-reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2-methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 Weigh and turn in benzoic acid product from mandelic acid oxidation. Dehydration of 2-methylcyclohexanol Jun 10 Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout TBA Checkout		Lab safety lecture, Policies		Melting points	
Complete mp and turn in report. Jun 1 Complete 1-bromobutane, weigh and turn in product Lecture on oxidation-reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2-methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 Jun 16 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout TBA Checkout		May 25		May 27	
Complete mp and turn in report. Jun 1 Complete 1-bromobutane, weigh and turn in product Lecture on oxidation-reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2-methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 Jun 16 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout TBA Checkout		Distillation Experiment		Synthesis of 1-	
Jun 1 Complete 1-bromobutane, weigh and turn in product Lecture on oxidation- reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2- methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 Weigh and turn in benzoic acid product from mandelic acid oxidation. Dehydration of 2- methylcyclohexanol Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2		Complete mp and turn in			
Complete 1-bromobutane, weigh and turn in product Lecture on oxidation- reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2- methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Weigh and turn in benzoic acid product from mandelic acid oxidation. Dehydration of 2- methylcyclohexanol Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Methyl benzoate report due Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2		report.		Distillation report due	
weigh and turn in product Lecture on oxidation- reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2- methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout benzoic acid product from mandelic acid oxidation. Dehydration of 2- methylcyclohexanol Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2		Jun 1		Jun 3	
Lecture on oxidation- reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2- methylcyclohexanol Jun 10 Jun 10 Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 15 Jun 15 Weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout from mandelic acid oxidation. phydration of 2- methylcyclohexanol Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2		Complete 1-bromobutane,		Weigh and turn in	
reduction balancing side chain oxidation of mandelic acid Jun 08 Dehydration of 2- methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 Weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Tetraphenyl of 2- methylcyclohexanol Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Methyl Benzoate Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2		weigh and turn in product		benzoic acid product	
side chain oxidation of mandelic acid Jun 08 Dehydration of 2-methylcyclohexanol Jun 10 Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 15 Jun 15 Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Dehydration of 2-methylcyclohexanol Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Tetraphenyl porphin lab due. Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2		Lecture on oxidation-		from mandelic	
mandelic acid Jun 08 Dehydration of 2-methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout TBA Checkout Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Fetraphenyl porphin lab due. Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2		reduction balancing		acid oxidation.	
Jun 08 Dehydration of 2- methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 Weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Jun 10 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Fatraphenyl porphin lab Methyl benzoate report due Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2		side chain oxidation of		Dehydration of 2-	
Dehydration of 2- methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 Weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2 Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Piels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2		mandelic acid		methylcyclohexanol	
Dehydration of 2- methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 Weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Tyn 24 Methyl benzoate report due Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2		Jun 08		Jun 10	
methylcyclohexanol and GC of produce mixture Complete and turn in report. Jun 15 Jun 15 Weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Aldol Condensation: Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Tatraphenyl porphin lab Methyl benzoate report due Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2		Dehydration of 2-			
GC of produce mixture Complete and turn in report. Jun 15 Weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Anisalacetophenone and recrystallization Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Methyl benzoate report due Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2				Aldol Condensation:	
Complete and turn in report. Jun 15 Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout				Anisalacetophenone and	
Jun 15 weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Jun 17 Aldol report due Esterfication: synthesis of Methyl Benzoate Methyl benzoate report due Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2				·	
weigh, take mp, and turn in product Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Esterfication: synthesis of Methyl Benzoate Methyl benzoate report due Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2					
Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Of Methyl Benzoate Methyl benzoate report due Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2				Aldol report due	
Tetraphenyl porphin Jun 22 Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product TBA Checkout Of Methyl Benzoate Methyl benzoate report due Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2		weigh, take mp, and turn in		Esterfication: synthesis	
Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2 TBA Checkout		product		of Methyl Benzoate	
Tetraphenyl porphin lab due. Complete methyl benzoate preparation, turn in product Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2 TBA Checkout		Tetraphenyl porphin			
due. Complete methyl benzoate preparation, turn in product Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2 TBA Checkout				Jun 24	
due. Complete methyl benzoate preparation, turn in product Diels-Alder reaction: synthesis of exo-7 oxabicyclo(2.2.1)hept-5-ene-2,3-dicarboxylic anhydride Lab Quiz 2 TBA Checkout		Tetraphenyl porphin lab		Methyl benzoate report	
preparation, turn in product synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2 TBA Checkout					
preparation, turn in product synthesis of exo-7 oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2 TBA Checkout		Complete methyl benzoate		Diels-Alder reaction:	
oxabicyclo(2.2.1)hept-5- ene-2,3-dicarboxylic anhydride Lab Quiz 2 TBA Checkout		, .		synthesis of exo-7	
ene-2,3-dicarboxylic anhydride Lab Quiz 2 TBA Checkout		,		oxabicyclo(2.2.1)hept-5-	
anhydride Lab Quiz 2 TBA Checkout					
TBA Checkout				anhydride	
				Lab Quiz 2	
		TBA Checkout			
		Lab Notebooks due			