College of Pharmacy

PHPS 601
Integrated Pharmacotherapy I
Spring, 2013

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Course Title: Integrated Pharmacotherapy I

Course Number: PHPS 601

Course Credit: 7 hours

Class Time(s) and Location:

Lectures: Day, Time and location TBA

Instructors:

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Prerequisites:

Acceptance into the program.

Course Description:

In this first of a series of three courses, pathophysiology, pharmacology, toxicology, and therapeutics will be integrated into one discipline that will examine pharmacotherapy based on organ systems of the body. The course will include a discussion of SOAP notes and an introduction to pharmaceutical principles. Students will learn to blend their factual knowledge of the basic sciences and apply this knowledge to drug treatment of specific disorders in disparate patients. Synchronous video chats will tie in the pharmacotherapy discussed in lecture with the treatment of CNS disorders. On-site workshops will occur at various times during the semester. During the semester, students will submit six SOAP notes on disease states discussed in class, and a research paper covering the current and future pharmacotherapy of a disease state selected by the student and approved by the Course Coordinator. The course will culminate with each student presenting their research paper and a relevant case.

Course Learning Outcomes:

For the purposes of program assessment, six broad program learning outcomes (PLO) havebeen developed. The PLO number refers to the overall outcome designed for the successful completion of the MSCP program.

Summary of Program Outcomes, Course Objectives and Assessment:

For this course, the successful student will be able to:

Course Learning Objectives (see below)	Assignment/ Assessment (see below)	Program Learning Outcome	PLO #
1-20	Exams I-III	Define, identify and recognize key concepts of terminology in all content areas	1
21-28	SOAP notes	Choose the appropriate diagnosis and effectively apply psychopharmacological knowledge to resolve clinical psycho-pathological cases using “Subjective, Objective, Assessment and Planning” (SOAP) notes and case presentations, and differentiate mental disorders that are drug-induced or caused by somatic disease.	3
21-44	Class presentations	Analyze, interpret, integrate and evaluate pharmacologically-based clinical findings in psychological settings through literature review, class presentations and written analysis. Demonstrate the ability to compare and	2 6

		contrast and interpret epidemiological, professional, legal and ethical findings in the clinical psychopharmacology literature and case presentations using information technology.	
Generally 19-44 with a special emphasis on four or five of the disease states discussed.	Research paper	Review and explain at a high level of proficiency, both orally and in writing, the most current theories of the pathophysiology, etiology, signs and symptoms underlying mental health disorders and their psycho-pharmacologic treatment. Analyze, interpret, integrate and evaluate pharmacologically-based clinical findings in psychological settings through literature review, class presentations and written analysis. Demonstrate the ability to compare and contrast and interpret epidemiological, professional, legal and ethical findings in the clinical psychopharmacology literature and case presentations using information technology.	2 4 6
21-44	Exams IV – XI	Define, identify and recognize key concepts of terminology in all content areas Analyze, interpret, integrate and evaluate pharmacologically-based clinical findings in psychological settings through literature review, class presentations and written analysis.	1 4

Course Objectives:

At the completion of this course, the student will be able to:

DRUG INFORMATION RESOURCES

1. Describe the latest drug information resources available in the area of psychopharmacology using Medline, NLM databases, Lexi-Comp, Cochrane Library Natural Medicines Database, Clinical Pharmacology, and Facts & Comparisons;
2. List drug information resources specific to different treatment populations; pediatric, adolescents, women, and geriatrics as well as culture resources.
3. Describe how to apply a systematic approach to drug information questions /developing search protocol.
4. Recall the structure and organization of drug information literature; primary, secondary and tertiary resources.
5. Describe evidence based medicine literature resources, i.e. RCT and practice guidelines and how to retrieve them.
6. List advantages of using PubMed tools to quickly find evidence-based literature drug information. (e.g., pharmacological action, clinical queries for evidence based medicine, limits, headings and subheadings)

7. Identify what types of drug information resources should be used for common types of drug information requests.
8. Recall drug identification: variations in drug nomenclature and their impact on information retrieval. For example chemical name, brand, name, generic name and drug classification.
9. Locate information on drug products approved for marketing in the U.S.
10. Recall how to evaluate drug information literature and resources.

PHARMACODYNAMICS & DRUG TARGETS

11. Explain the concept of ionization.
12. Explain the concepts of solubility and lipophilicity.
13. Explain the concepts of good manufacturing and compounding practices.
14. List the concepts of dosage form design in relation to formulation, biopharmaceutics and kinetics.
15. Explain and list excipients used to formulate different dosage forms: powders, capsules, tablets, ointments, creams gels, solutions and suspensions.
16. Explain how new drugs are discovered, optimized, developed and approved.
17. Describe rates of pharmaceutical and PK processes.
18. Describe how drugs reach their targets and the processes involved.
19. Explain the distribution, excretion and metabolism of drugs.
20. Describe the fundamental principles of drug action.

PHARMACOLOGY

21. Know pharmacological agents discussed in the course and their classification; describe indications, routes of administration, dosing regimens, and therapeutic objectives.
22. Describe major distinctions in pharmacokinetic or pharmacodynamic properties between individual agents within a particular drug class; apply this knowledge in rationalizing drug choice and dose management.
23. Describe mechanisms of action at various levels of biological organization (cells, tissues, organ systems) for the drugs discussed in the course; rationalize therapeutic actions vs. side effects.
24. Explain how dose, rate of absorption, volume of distribution, clearance, and elimination half-life affect the plasma concentration of a drug.
25. Define the mechanistic basis of drug toxicity, dependence on dose and bioavailability, clinical manifestations and treatment of adverse effects.
26. Identify drug interactions; know examples of beneficial vs. non-beneficial interactions relevant to the topics discussed in the course.
27. Describe the influences of disease, age, and genetics on pharmacological responses; apply this knowledge in modifying drug therapy.
28. Compare and contrast the potential interactions (pharmacokinetic and pharmacodynamic) of drugs used to treat various disorders with those used to treat disorders on the central nervous system

PATHOPHYSIOLOGY ANDTHERAPEUTICS

29. Describe the appropriate interpretation and utility of laboratory tests used in medical and prescribing practice to evaluate the status of human physiologic functions

30. Describe how to create a SOAP note for patients suffering from a variety of disorders that were discussed in class
31. Describe in general terms the basic functions of macronutrients (carbohydrates, lipids and proteins) and micronutrients (vitamins and minerals);
32. Discuss the relationship of macronutrients and micronutrients to the etiology of various disorders;
33. Describe the current trends seen in food habits and its effect on risk for disease.
34. Define various theories of the causes of obesity and the extent it contributes to various disorders;
35. Discuss fundamental problems involving weight management;
36. Describe the pathophysiologic processes responsible for each disease state discussed and integrate this knowledge into the therapeutic decision making process.
37. Describe the etiology, incidence, and prognosis associated with each disease state discussed
38. Identify the major sign, symptoms, and clinical findings associated with associated with each disease state.
39. List drug(s) of choice, alternative therapies, both drug and nondrug, usual doses and dosage forms, common side effects and adverse reactions, monitoring parameters for each disease state and drugs, desirable therapeutic goals and outcome for therapy, integration of multiple disease state into therapeutic decisions.
40. Evaluate various therapeutic alternatives and disease preventions for each disease state based on the patient specific information and design a patient specific therapeutic regimen.
41. Assess the effectiveness of therapy on the basis of clinical and laboratory parameters.
42. Interpret and use patient case summaries, patient databases, and medical abbreviations and terminology.
43. Describe a process to perform drug therapy assessment, monitoring, and documenting recommendations.
44. Integrate and apply information from the basic and clinical sciences courses in the curriculum and from other experiences to develop appropriate and effective pharmaceutical care plan to solve patient therapeutic problems.

Course Assessment:

Assessment Tool	***Points***
Exam I-XI	50 points (550 points)
Five SOAP Notes	20 points(100 points)
Presentation	30 points
Research paper	50 points
SOAP note presentation	10 points
TOTAL	**740 points (100%)***

* Students may receive up to 5 extra credit points per course by submitting written exam-style questions, which they will present to the other students during video chats.

The appropriate manner to create SOAP notes will be provided via a live, on-site seminar-style visit and reinforced during subsequent video chats. A grading rubric will be provided during the first week of class. Each student will be given the opportunity to present one of their SOAP note patients at the end of a video chat. The date and topic of this SOAP presentation will be assigned to each student by the course coordinators.

The research paper will be no less than 20 pages with 30 primary references on the current and future pharmacotherapy of a disease state covered in class. The topic will be determined by the student with the approval of the Course Coordinator. Each student will present the findings of their research paper in a presentation at the end of the course via video chat. The presentation will be in Powerpoint format submitted by the student to the Course Coordinators at least one day before the video chat presentation. Each presentation will be 20 minutes in length and will contain a patient case relevant to the paper topic at the end. The patient case will encompass approximately 5 minutes of the total presentation length and should describe a patient that details the findings of their research paper. The student may use a patient that they have had in the past, a patient that they have found on the internet or may create the details of the patient if other sources are not sufficient.

Course Grade Scale (%):

A	92-100	B-	79-81
A-	89-91	C+	76-78
B+	86-88	C	70-75
B	82-85	F	less than 70

Required Texts:
Basic and Clinical Pharmacology, 10th Ed., Katzung BG, McGraw Hill, 2007.

Pharmacotherapy: A Pathophysiologic Approach, 7th Ed., DiPiro JT, Talbert RL, Yee GC, Matzkie GR, Wells BG, Posey LM, McGraw Hill Companies Inc, New York, 2008.

Recommended Texts:

Goodman and Gilman's The Pharmacological Basis of Therapeutics, 11th edition, Brunton LL, Lazo JS, and Parker KL, McGraw Hill 2006.(12th edition if available).

Introduction to the Pharmaceutical Sciences, Pandit, NK, Lippincott Williams & Wilkins, 2007.

Applied Therapeutics: The Clinical Use of Drugs, Koda-Kimble, M.A. and Young, L.Y., 9th ed., Lippincott, Williams and Wilkins, 2008.

Online Course Provisions:

Course material will be provided using a variety of tools. Pre-recorded lectures, slides, course syllabus, course calendar, assignments, announcements and multiple choice

exams will be posted to the Laulima website, which students will be able to access on a 24/7 basis. Pre-recorded lectures will be in either a .mov or commensurate format or as a url to an archived recording. Video chats will be held using an online meeting service and students will be provided training at the beginning of the program. For more information pertaining to UHH online course tools, see http://www.uhh.hawaii.edu/academics/dl/index.php.

Students are expected to attend live online video chats. It is recognized that students may occasionally have professional duties that interfere with participation in live online or on-site course offerings. In those instances, as well as for purposes of review, recordings of these offerings will be provided to students. Students are expected to notify the course coordinator in advance if they will not be able to attend a video chat.

Professionalism Policies:

Make-up exams (due to illness or approved extenuating circumstance) will generally only be given if the instructor is notified prior to the examination. Failure to take an exam will count as a zero on that exam. **Missing Exams**- Documentation will be required for all missed exams.**Requests for re-grading exam questions** may result in the entire exam being re-graded. Point total errors can be corrected without re-grading the entire exam.

Cell Phones, Pagers & Other Communication Devices:

All cell phones, pagers etc. are to be on **silentmode** during class or **turned off.** Cell phones and pagers should be turned off during video chats to avoid wireless interference. Cell phones and pagers are **NOT** to be answered during video chats; if you need to answer a call, please indicate that you have walked-away from the video chat session.

Dress Code:

Students are expected to dress in an appropriate professional manner.

Attendance Policy:

University of Hawai`i at Hilo encourages 100% attendance by students at all course-related sessions, lectures, laboratories, and clinical assignments. Each college or department has the prerogative to establish its own attendance requirements and policies. Unless a department's policy differs, **class attendance is mandatory for all students for the first session of each course in each quarter as well as on the first day of class after scheduled vacations and University holidays.** If illness, a personal emergency, personal incapacitation, or other exceptional problem of a serious nature causes a student to be absent from a session requiring mandatory attendance, the student must immediately notify the course coordinator and follow stated course policies and procedures. Unexcused absences during these or other mandatory attendance sessions may result in course failure.

Examination Decorum:

- Students are expected to maintain a demeanor that is consistent with academic and professional standards during examinations.
- Upon entry into the examination site, students must place all books, notes, study aids, hats, coats and personal possessions on the floor (back or front of the room).
- Students are to be seated and ready to take an examination at the posted starting time for the exam.
- All exams are "closed book," meaning that no outside resources may be used during the entire exam unless otherwise specified.
- No talking, texting or emailing is allowed once the examination begins.
- Failure to comply with any reasonable request of the course coordinator or acts of academic dishonesty will be dealt with as defined in the UHH-CoP Graduate Handbook.

Students must sign an honesty agreement before commencing with any online examination.

Academic Honesty:

Academic honesty and integrity are expected of all students throughout their course of study at UHH-CoP. Any violation of this code is considered to be a serious academic violation and may result in a reprimand, monetary fine, written warning, academic and/or disciplinary probation, suspension, or dismissal. Academic dishonesty constitutes a breach of academic integrity that violates the academic foundation of an institution and compromises the integrity and well-being of the educational program. The policies on students' academic and professional responsibilities are included in Graduate Handbook UHH-CoP.

Students with Disabilities:

Any student with a documented disability who would like to request for accommodations should contact the University Disability Services Office (933-0816 (Voice), or 933-3334 (TTY), shirachi@hawaii.edu, (Hale Kauanoe A Wing Lounge), as early in the semester as possible.

Tentative Schedule of Lecture Topics: KEY: Video chat Tripler live SOAP Exams Research paper, Presentations

Integrated Pharmacotherapy I

Week		Contact #	Topic	Instructor
1	1/7/13	1	Drug Information Resources	Knehans
		2	Drug Information Resources	Knehans
		3	Drug Information Resources	Knehans
		4	Drug Information Resources	Knehans
		5	Drug Information Resources	Knehans
		6	Drug Information Resources	Knehans
		7	Drug Information Resources	Knehans
	1/11/13	**8**	**On-site workshop – Drug Info Resources**	**Knehans**
2	**1/14/13**	**9**	**Video chat 1 (contacts 1-8)**	**Steinman/Narciso**
	1/15/13		**Exam 1 (contacts 1-9)**	**Narciso**
		10	Dosage form design	Morris
		11	Dosage form design	Morris
		12	Dosage form design	Morris
		13	Dosage form design	Morris
		14	Dosage form design	Morris
		15	Dosage form design	Morris
3	**1/21/13**		**Martin Luther King Day**	**Holiday**
		16	Dosage form design	Morris
		17	Dosage form design	Morris
		18	Intro to Pharmacodynamics	Konorev
		19	Intro to Pharmacodynamics	Konorev
		20	Drug Targets	Konorev
		21	Drug Targets	Konorev
		22	Drug Targets	Konorev
	1/25/13	**23**	**On-site workshop - Intro to Pharmacology**	**Fisher**
4	**1/28/13**	**24**	**Video chat 2 (contacts 10-23)**	**Steinman/Narciso**
	1/29/13		**Exam 2 (contacts 10-24)**	**Narciso**
		25	Intro to Gen Pharmacology/Drug Transport	Chagoule/Narciso
		26	Intro to Pharmacokinetics	Chagoule/Narciso
		27	Intro to Pharmacokinetics	Chagoule/Narciso
		28	Variability in Drug Action	Chagoule/Narciso
		29	Intro to Pharmacogenomics	Chagoule/Narciso
5	**2/4/13**	**30**	**Video chat 3 (contacts 25-29)**	**Steinman/Narciso**
	2/5/13		**Exam 3 (contacts 25-30)**	**Narciso**
		31	Lab values	Tan
		32	Lab values	Tan

		33	Lab values	Tan
		34	Lab values	Tan
		35	Lab values	Tan
		36	Lab values	Tan
	2/8/13	37	**On-site workshop - physical assessment**	**Davis**
6	**2/11/13**	**38**	**Video chat 4 (contacts 31-37)**	**Steinman/Narciso**
	2/12/13		**Exam 4 (contacts 31-38)**	**Narciso**
		39	Nutrition	Fisher
		40	Nutrition	Fisher
		41	Nutrition	Fisher
		42	Nutrition	Fisher
	2/15/13	43	**On Site SOAP noting workshop**	**Narciso**
7	**2/18/13**		**President's Day**	**Holiday**
		44	Obesity and weight control	Fisher
		45	Obesity and weight control	Fisher
		46	Obesity and weight control	Fisher
	2/24/13		**SOAP Obesity due**	**Narciso**
8	**2/25/13**	**47**	**Video chat 5 (contacts 39-46)**	**Steinman/Narciso**
	2/26/13		**Exam 5 (contacts 39-47)**	**Narciso**
		48	ANS Review	Connelly
		49	Cholinergic agonists PC	Konorev
		50	Cholinergic agonists PC	Konorev
		51	Anticholinergics PC	Konorev
		52	Anticholinergics PC	Konorev
9	**3/4/13**	**53**	**Video chat 6 (contacts 48-52)**	**Steinman/Narciso**
		54	Adrenergic agonists PC	Konorev
		55	Adrenergic agonists PC	Konorev
		56	Adrenergic agonists PC	Konorev
		57	Adrenergic antagonists PC	Konorev
		58	Adrenergic antagonists PC	Konorev
10	**3/11/13**	**59**	**Video chat 7 (contacts 54-58)**	**Steinman/Narciso**
	3/12/13		**Exam 6 (contacts 48-59)**	**Narciso**
		60	Cardiovascular Physiology review PP	Connelly
		61	Cardiovascular Physiology review PP	Connelly
		62	Hypertension PP	Ciarleglio
		63	Hypertension PC	Konorev
		64	Hypertension PC	Konorev

		65	Hypertension PC	Konorev
	3/17/13		**Topic for research paper due by 11:58pm**	
11	**3/18/13**	**66**	**Video chat 8 (contacts 60-65)**	**Steinman/Narciso**
		67	Hypertension TP	Ciarleglio
		68	Hypertension TP	Ciarleglio
		69	Hypertension TP	Ciarleglio
		70	Hypertension TP	Ciarleglio
		71	Hypertension TP	Ciarleglio
	3/24/13		**SOAP Hypertension due**	**Narciso**
12	**3/25/13**	**72**	**Video chat 9 (contacts 67-71)**	**Steinman/Narciso**
	3/26/13		**Exam 7 (contacts 60-72)**	**Narciso**
		73	Hyperlipidemia PC	Konorev
		74	Hyperlipidemia TP	Ciarleglio
		75	Hyperlipidemia TP	Ciarleglio
		76	Hyperlipidemia TP	Ciarleglio
		77	Hyperlipidemia TP	Ciarleglio
	3/29/13		**Good Friday**	**Holiday**
	3/31/13		**SOAP Hyperlipidemia Due**	**Narciso**
13	**4/1/13**	**78**	**Video chat 10 (contacts 73-77)**	**Steinman/Narciso**
	4/2/13		**Exam 8 (contacts 73-78)**	**Narciso**
		79	Heart Failure PP	Ciarleglio
		80	Heart Failure PP	Ciarleglio
		81	Heart Failure PC	Konorev
		82	Heart Failure PC	Konorev
14	**4/8/13**	**83**	**Video chat 11 (contacts 79-82)**	**Steinman/Narciso**
		84	Heart Failure TP	Ciarleglio
		85	Heart Failure TP	Ciarleglio
		86	Heart Failure TP	Ciarleglio
		87	Heart Failure TP	Ciarleglio
		88	Heart Failure TP	Ciarleglio
	4/12/13		**SOAP Heart Failure due**	**Narciso**
15	**4/15/13**	**89**	**Video chat 12 (contacts 84-88)**	**Steinman/Narciso**
	4/16/13		**Exam 9 (contacts 79-89)**	**Narciso**
		90	IHD – MI & AP PP	Tokumaru
		91	IHD – MI & AP PP	Tokumaru
		92	IHD – MI & AP PC	Konorev
		93	IHD – MI & AP PC	Konorev
		94	IHD – MI & AP TP	Tokumaru

	4/19/13		**Research paper due by 11:58 pm!**	
16	4/22/13	95	IHD – MI & AP TP	Tokumaru
		96	IHD – MI & AP TP	Tokumaru
		97	IHD – MI & AP TP	Tokumaru
		98	IHD – MI & AP TP	Tokumaru
	4/28/13		**SOAP IHD due**	Narciso
17	**4/29/13**	**99**	**Video chat – Presentations**	**Faculty**
	4/30/13		**Exam 10 (contacts 90-99)**	**Narciso**
		100	CNS review	Koomoa-Lange
		101	CNS review	Koomoa-Lange
		102	CNS review	Koomoa-Lange
		103	CNS review	Koomoa-Lange
18	**5/6/13**	**104**	**Video chat 15 (contacts 100-103)**	**Steinman/Narciso**
	5/7/13		**Exam 11 (contacts 100-104)**	**Narciso**