Phar 6754 Diabetes and Metabolic Syndrome

Course Syllabus Spring 2020
2.1 Credits
January 15 – March 20, 2020

This course adheres to the items listed in the College of Pharmacy Central Syllabus:
https://docs.google.com/a/umn.edu/document/d/1artQ5e1rbzxe8lEtWo7BE8k8snZAEgMMz_QcW8yJ-II/edit?pli=1

Meeting Times & Locations

Day	Time	Duluth Room	Twin Cities Room
Monday	10:10 – 12:05	LSci 165	Moos 1-450
Wednesday	1:25 – 3:20	LSci 165	Moos 1-451
Thursday	1:25 – 3:20	Lib 410	WDH 7-135

Course Website: https://canvas.umn.edu/courses/162676

Instructional Team

If you need assistance with the course, contact one of the Teaching Assistants.

Technology Help, Duluth: 218-726-8847 itsshelp@d.umn.edu
Technology Help, Twin Cities: 612-301-4357 help@umn.edu

Faculty Office Hours: By appointment

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Graduate Teaching Assistants:
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Additional Course Instructors:

Pathophysiology Content Lead:
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Course content:
In this course, students will learn the principles of the pathophysiology of diabetes, pharmacology of the antidiabetic agents, evaluate key research on diabetes, interpret and apply clinical guidelines for diabetes, assess socioeconomic aspects of diabetes, and apply this information to patient cases. Special populations with diabetes will also be discussed including pediatric, gestational, and geriatric diabetes.

Students will also learn the pathophysiology of metabolic syndrome, pharmacology of obesity treatments, nonpharmacological and pharmacological ways to treat metabolic syndrome, and apply this information to patient cases.

Students will apply all of the diabetes and metabolic information learned, in addition to content learned in the CV module during fall of their P2 year, to the development of a care plan for a patient with diabetes and metabolic syndrome.

Course format:
Students will be in class for up to 6 hours per week. In class time will consist of lectures, in-class case discussions, and team based learning experiences. Students will be expected to come prepared for class as assigned in the course syllabus, which will include assigned readings which will be applied during in-class case discussions. Assessments will be completed through quizzes, paper examination, presentations, assignments, and care plan documentation. This course will connect with content covered in the Pharmaceutical Care Learning Center for additional integration and application of knowledge.

Students will also be held responsible for this content in the integrated oral exam in the Spring PD2 semester.

Prerequisites

- Students will need to have successfully completed: Molecular metabolism/Nutrition, Cardiovascular Pharmacotherapy & Pharmaceutical Care Skills Lab 1-3.
- Students should be able to describe the physiology of insulin action, incretin hormones, amylin, and the fasting and fed states.
- Students should be able to describe how insulin is designed and manufactured.
- Students should be able to describe the following biochemistry topics: carbohydrate, lipid, and protein metabolism.
- Students should be able to assess a patient and determine most appropriate pharmacotherapy treatment options for a patient's hypertension and dyslipidemia treatments, including ability to describe, interpret and apply evidence-based guidelines.
- Students should be able to describe how nutrition impacts energy production, utilization and storage, and obesity.
- Students need to be able to describe the caloric content of carbohydrates, proteins and lipids and be able to apply that knowledge to reading food labels and evaluating a patient's nutritional status.

Course Materials

The following materials are required in this course:

- Zeind and Carvalho's *Applied Therapeutics:The Clinical Use of Drugs*, current e-text edition

The following materials are required in this course:

- Non-programmable calculator
- Laptop, notebook or ipad (device) to access internet during class sessions

Attendance Policy

Students are expected to attend every class for which they are registered. Students are expected to attend classes on the campus where they are enrolled. Instructors may choose to take attendance. See COP Central Syllabus for information on what is considered an excused absence.

Active Learning Activities

Active learning activities and case sessions that have points associated with them will not be recorded. If you have an unexcused absence on an active learning day where points are earned, you will receive 0 points for that session. In the event of an excused absence, it is up to the discretion of the instructor whether you will need to complete an outside assignment to receive points for the active learning.

Diabetes Case and Metabolic Syndrome Case

Late submissions will not be accepted on cases we discuss in class. Case submissions must be turned in prior to the start of class on the day they are discussed.

Course Goals & Objectives

1. Students will be able to **explain** the pathophysiologic processes behind development of obesity, diabetes and metabolic syndrome and be able to **explain** the mechanisms of action of various hypoglycemic agents, including predicting risks and benefits of the individual agents.
2. Students will be able to **develop** an appropriate care plan for patients with diabetes, including assessment, establishment of goals of therapy, and choosing evidence-based, individualized pharmacotherapy for management of hyperglycemia and complications.
3. Students will be able to **develop** an appropriate care plan, including assessment, establishment of goals of therapy and choosing evidence-based, individualized pharmacotherapy to manage all aspects of the metabolic syndrome (hypertension, dyslipidemia, hyperglycemia and obesity) in patients in order to reduce risk of complications.
4. Students will be able to **describe** and **apply** relevant health quality measures, adherence data, clinical effectiveness evidence, safety profiles, and cost information for management of individual patients with diabetes/metabolic syndrome and overall population health.

Skill Development for lab:

- Students will be able to complete the following diabetes education skills:
- Be able to **educate** a patient on insulin injections, pen devices and other injectable diabetes medications.
- Be able to **calculate** appropriate starting doses of insulin for patients with Type 1 and Type 2 diabetes.
- Be able to **apply** basic motivational interviewing skills in a simulated patient interview situation to encourage patient empowerment to manage diabetes and metabolic syndrome conditions .

Assessments and Grading

The following graded assessments will count toward your final grade for this course in the following amounts:

Title Brief description	Learning Goal	Points	% of final grade
Quiz 1 Quizzes will primarily be MCQ, but may include short answer	Goal 1 Domains 6.3, 6.4	10	10%
Pharmacist Patient Care Process (PPCP) Active Learning Activity	Goal 2 Domain 1, 2, 6	10	10%
Active Learning activity – Evaluation of Drug Literature	Goal 2 Domain 1, 2, 6	5	5%
Written Exam 1 Exam will be a mixture of MCQ and short answer questions	Goal 1 & 2 Domain 1, 2, 6	20	20%
Oral Exam	Goal 1 & 2 Domain 1, 2, 6	5	5%
Diabetes Care Plan	Goals 2 & 3 Domain 1, 2, 6	10	10%
Quiz 2 Quizzes will primarily be MCQ, but may include short answer	Goal 2 & 4 Domain 2, 3, 4	10	10%
Drug Formulary Assignment	Goal 4 Domain 2, 3, 4	10	10%
Metabolic Syndrome Care Plan	Goals 2 & 3 Domain 1, 2, 6	10	10%
Quiz 3 Quizzes will primarily be MCQ, but may include short answer		10	10%

Course Letter Grades

Final Course Grade & Minimum Passing Level: Final grades will be rounded to the nearest whole number using common rounding rules (as per Microsoft Excel® where values ≥ 0.5 are rounded up). Letter grade assignments appearing on transcripts will reflect the table below:

Grade	A	A-	B+	B	B-	C+	C	C-	D	F
%	100-93	92-90	89-87	86-83	82-80	79-77	76-73	72-70	69-60	59-0

Statement on Penalties for Late Assignments

All assignments must be turned in on time. Late work may be accepted in certain circumstances. Any unexcused late assignments, with prior approval from course directors, will result in a 10% reduction in the grade for every 24 hours it is late. Emergencies and other unforeseen events may be considered regarding late work. It is imperative that you contact your instructor before the due date for more information. Contacting your instructor after the due date may preclude any allowance for late work.

Assessment Policy

Student learning will be evidenced by performance on three quizzes, one multiple choice/short answer exam, oral exam content related to the course, two active learning class sessions, two care plans (one related to diabetes, one related to metabolic syndrome), and one Drug Formulary Assignment.

Exams will **not** be graded on a curve. **The use of electronic devices such as tablets, smartphones, programmable calculators, and other devices with electronic databases is not permitted during written or oral exams unless specified by course or section director.** Standard analysis of composite class response for all exam questions will be conducted by the authors of those exams prior to releasing the grades. Should the University be closed due to an unforeseen event, the exam will be rescheduled. Seats may be assigned in the classroom for each exam. Instructors may provide seating instructions as you enter the room.

Exams and quizzes are not returned to the student. Post-exam review sessions are listed in the syllabus schedule. Quiz 2 and 3 will be reviewed at a date to be determined after spring break. Students will be given the opportunity to review their exams and quizzes at this time. Thus, students desiring to review their exams need to attend the scheduled review sessions. If you have extenuating circumstances that preclude participating in reviewing at the scheduled time, you may request an appointment with a TA to review the exam outside of those set times. Faculty discretion will be used to determine if the extenuating circumstance is reasonable. Any questions regarding exams should be referred to the course directors in writing. Regrade requests for exams and quizzes are due within one week of the review session. Regrade requests for assignments are due within one week of the grade being posted.

Absence from Assessments: Please refer the *Exam Make-Up Policy* in the Central Syllabus. The *Exam Make-Up Policy* will also be followed for unexcused absences from quizzes.

Minimum Passing Level

Per University and College Policy, students who receive a grade below D in this course must successfully repeat the course before advancing to courses which require this course as a prerequisite.

Daily class and assessment schedule

Date	Topic(s)	Assignment(s) & Class Notes	Lead Instructor
Jan 15	Course Introduction & Overview Introduction to Diabetes Pathophysiology of Diabetes & Long-Term Complications		Funk/Schweiss Funk Haskell-Luevano
Jan 16	Pharmacology of Insulin Medical Nutrition Therapy	Class will be held in LSci 165 & Moos 5-125	Haskell-Luevano Brunzell
Jan 20	No Class – Martin Luther King Day		
Jan 22	Clinical use of insulin		Schweiss
Jan 23	Clinical use of insulin		Schweiss
Jan 27	Pharmacology of antiglycemic agents Clinical use of antiglycemic agents (Type 2 Diabetes)		Haskell-Luevano Schweiss/Funk
Jan 29	Drug literature evaluation with diabetes study	Pre-Work due before class	Nguyen
Jan 30	No Class- CPF day		
Feb 3	Clinical use of antiglycemic agents (Type 2 Diabetes) (cont.)		Schweiss/Funk
Feb 5	Clinical use of antiglycemic agents (Type 2 Diabetes) (cont.) Intro to glucose monitoring		Schweiss/Funk Smith
Feb 6	**Quiz 1 (30 minutes, online, In-Class): Covers content from Jan 15 – Feb 5** Applying guidelines/evidence to diabetes care	Quiz 1	All instructors Schweiss
Feb 10	Applying guidelines/evidence to diabetes care		Schweiss
Feb 12	Management of Diabetes Complications Geriatrics		Zaheer Funk
Feb 13	Pharmacists Patient Care Process in Diabetes	Pre-Work due before class	Bunch
Feb 17	Case studies: antiglycemic agents for type 2 diabetes		Bader
Feb 19	DM Care Plan Quiz 1 review session	Small group discussions; Care plan due before class	Schweiss (and many facilitators) Funk/ Schweiss
Feb 20	No Class – Legislative Day		
Feb 24	**EXAM 1 (1 hour In-Class): Covers content from Jan 15 - Feb 19**	**EXAM 1** *Class meets 1 hour from 10:10-11:10 AM	All Instructors
Feb 26	Intro to metabolic syndrome (clinical) Intro to metabolic syndrome (basic science) Obesity treatments: nonpharmacological/ bariatric surgery		Funk Haskell-Luevano Funk

Feb 27	Obesity treatments: pharmacological		Funk
Mar 2	Metabolic syndrome case discussion (1 hour) Exam 1 review session	*Care plan and assignment due before class	Funk All instructors
Mar 4	**Quiz 2 – (30 minutes, online, In-Class): Covers content Feb 26-Mar 2**		Funk
Mar 5	Medication systems management		Seifert
Mar 9-Mar 13	**No Class – Spring Break**		
Mar 16	Medication cost considerations		Schondelmeyer
Mar 18	Diabetes & Society		Okoro
Mar 19	No Class	Drug Formulary Assignment Due Mar 19 by 1:25 PM	
Mar 18 @ 15:30 - Mar 20 @ 17:00	**Quiz 3 – Online (30 minutes). Covers content from Mar 5-Mar 18**		

Quiz 2 and 3 reviews are scheduled for the following dates: TBD

University of Minnesota and College of Pharmacy Policy Reference (Centralized Syllabus)

[This page includes all required UMN and CoP policies, e.g., Academic Freedom; Copyright; Course Evaluations; Disability Accommodations; FERPA, etc.]