

Pharmaceutical Calculations

PHAR 7201

Fall 2019

Course Description

This course focuses on quantitative and qualitative principles encompassing calculations performed by pharmacists in various practice settings.

Additional Course Description

In this course, fundamental principles and basic techniques involved in pharmaceutical calculations are presented for students to develop skills in pharmaceutical calculations and problem solving applicable to the practice of pharmacy. Scope primarily includes computations related to prescriptions and medication orders.

Course Credit

2 credit hours

Pre-Requisites

None

Co-Requisites

None

Class Meeting Days, Time & Location

Wednesday: 10:00 am to 12:00 pm; W.T. Brookshire Hall room #137

Course Coordinator

Farah Deba, Ph.D.

W.T. Brookshire Hall Room # 345

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Office hours: Tuesday and Wednesday from 12 pm to 1 pm and by appointment

Preferred method of contact: Email

Fisch College of Pharmacy (FCOP) and UT Tyler Policies

This is part 1 of the syllabus. Part 2 contains UT Tyler and the FCOP course policies and procedures. These are available as a PDF at <https://www.uttyler.edu/pharmacy/academic-affairs/files/fcop-syllabus-policies.pdf>. For experiential courses (i.e., IPPE and/or APPE), the Experiential Manual contains additional policies and instructions that supplement the Syllabus Part 1 and 2. Please note, the experiential manual may contain policies with different deadlines and/or instructions. The manual should be followed in these cases.

Required Materials

Most course required materials are available through the Robert R. Muntz Library. These materials are available either online* (<http://library.uttyler.edu/>) or on reserve.

1. Complete Math Review, 3rd ed. William A. Hopkins. APhA. 2010. e-ISBN: 1-58212-134-6 (Available via online through the Robert R. Muntz Library)
2. Understanding Pharmacy Calculations, 2nd ed. Teresa A. O’Sullivan and Linda S. Albrecht. 2012. ISBN: 1-58212-095-1. (Available via online through the Robert R. Muntz Library)
3. Other required materials will be posted on the classes’ Canvas site. The site address is: uttyler.edu/canvas.

Recommended Materials

1. Pharmaceutical Calculations, 14th ed. Howard C. Ansel. 2013. ISBN: 978-1451120363. Walter Kluwer.
2. Ansel’s Pharmaceutical Dosage Forms and Drug Delivery Systems. 9th ed. Allen LV, Popovich NG, Ansel HC, et.al. Lippincott Williams & Wilkins. (2010) ISBN: 978-0-78-177934-0. (Available via online through the Robert R. Muntz Library)

Course Format

The course may include, but are not limited to, the following activities:

1. Independent study of selected readings
2. Individual readiness assessment tests (iRATs)
3. Team-based learning, active learning strategies:
 - a. Team readiness assessment tests (tRATs)
 - b. Team application of content and concepts

Course Learning Outcomes (CLOs)

| CLOs | Related PLO(s) | Assessment Methods | Grading Method | JCPP Skill(s) Assessed | AACP Std. 11 & 12 |
|--|----------------|--------------------|----------------|------------------------|-------------------|
| 1. Demonstrate competence in performing pharmaceutical calculations to ensure accuracy and precision and to minimize the risk for error. | 1 | 1 | ES | NA | 4 |
| 2. Interpret and apply common abbreviations and symbols used on prescription and medication orders for correct calculations. | 1 | 1 | ES | NA | 4 |

Course Assessment Methods

| | Assessment Method | Description |
|---|--|--|
| 1 | Final Exam Multiple Choice or Multiple Selection Question(s) | Standard MCQ and Select All that apply questions. |
| 2 | Final Exam Open Ended Question(s) | Handwritten calculations fill in the blank Question(s) and may involve paper-based calculations. The College will provide calculator during exams) |

Grading Policy & Grade Calculation

Grades will be determined based on evaluation of individual and team readiness assessment tests (iRATs, tRATs), individual and team cumulative assessment tests (iCATs, tCATs), midterm examinations, final written examinations, skills assessments, graded application assignments, participation in team-based projects, peer evaluations and other assessment methods that may include, but not limited to, Objective Structured Clinical Examinations (OSCE). Examinations, RATs and CATs may consist of, but not limited to, multiple-choice, true/false, fill in the blank, short-answer, essay, and problem-based questions.

During the time the course is in progress, students whose cumulative course percentage falls below 70.0% may receive an academic alert and be subject to periodic course content review in special sessions with the course instructor(s). The student's faculty advisor may receive an academic alert to act upon on the student's behalf.

All examinations, quiz, and assignments, including the final examination, may be **cumulative**. Students are responsible for material presented during the prior courses. The grading scale for all graded material is below. The final course grade will be assigned according to the calculated percentage and the percentages will not be rounded upward or downward. For additional information, see examination/assessment policy below.

Standard Grade Calculation*

| | |
|-----------------------------|-------------|
| Individual Component | 85% |
| iRATs | 15% |
| Quiz | 15% |
| Midterm Exam | 20% |
| Final Exam (Cumulative) | 35% |
| Team Component | 15% |
| tRATs | 5% |
| Application | 10% |
| Total | 100% |

****The final course letter grade will be determined according to the following grading scheme:***

| | |
|---|-----------------|
| A | 90 - 100 % |
| B | 80 - 89.999 % |
| C | 70 - 79.999 % |
| D | 65.0 - 69.999 % |
| F | < 65.0 % |

PHAR 7201: Pharmaceutical Calculations Schedule (Fall 2019)

| WEEK | DAY | TOPIC | Instructor | CLO | WSOP Category |
|--------------------------------------|-----------------------------|---|--------------|------|---------------|
| 1 | 08/28 | Interpreting Drug and Medication Orders* | Dr. Talukder | 1 | S19 |
| 2 | 09/04 | Pharmaceutical measurement * | Dr. Deba | 1,2 | S19 |
| 3 | 09/11 | PHAR 7301: Principles of Physiology, Pharmacology, & Pharmacogenomics | Dr. Coyne | | |
| 3 | 09/13 | Ratio and Proportion * | Dr. Deba | 1,2 | S19 |
| 4 | 09/18 | Concentrations and Dilutions* | Dr. Deba | 1, 2 | S19 |
| 5 | 09/25 | Quiz 1 Percentage Calculations | Dr. Deba | 1, 2 | S19 |
| 6 | 10/02 | Reducing and Enlarging Formulas* | Dr. Deba | 1, 2 | S19 |
| 7 | 10/9 | Midterm Exam | | | |
| 8 | 10/16 | Isotonic and Buffer Solutions* | Dr. Deba | 1, 2 | S19 |
| 9 | 10/23 | Electrolyte Solutions* | Dr. Deba | | |
| 10 | 10/30 | Quiz 2 Isotonic and Buffer Solutions; Intravenous Flow Rates | Dr. Deba | 1, 2 | S19 |
| 11 | 11/06 | Calculation of Doses: General Considerations* | Dr. Deba | 1, 2 | S19 |
| 12 | 11/13 | Calculation of Doses: Patient Parameters* | Dr. Deba | 1, 2 | S19 |
| 13 | 11/20 | Quiz 3 Selected Clinical Calculations | Dr. Deba | 1, 2 | S19 |
| Thanksgiving Holiday: November 25-30 | | | | | |
| 14 | 12/04 | Selected Calculations Involving Compounding and Active Moiety* | Dr. Deba | 1, 2 | S19 |
| 15 | Final Exams (Comprehensive) | | | | |

* iRATs & tRATs

Please note that dates, topics, and assignments are subject to change. In the event of a change, you will be given ample notification of the change.

