



Course Specifications
(2015 – 2016)

Course: English Language

Course code: 1114





Course Specifications (2015 – 2016)

A. Basic Information

Program(s) on which the course is given:	General
Department offering the course	Pharmacognosy
Faculty offering the program	Arts
Dept. responsible for teaching the course	English department
Academic year / level	1st
Course title	English Language
Course code	1114
Contact hours (credit hours)	2
Pre-requisite of the course:	No
Course coordinator	Dr. Hala Rashed
Major or Minor element of program	Minor
Date of specification approval	09/09/2015

B. Professional Information

1. Overall Aims of Course

Training in reading, comprehension, basic grammatical rules, writing and translation. The course adopts a systematic approach to proper essay writing, such as idea development, paragraph structure, introductions, support, and conclusions.

2. Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

By the end of the course, the students should be able to:

- a1. Read and write scientific and non-scientific articles
- a2. Apply basic grammatical rules





Course Specifications (2015 – 2016)

b- Intellectual Skills

By the end of this course, the student should be able to:

- b1. Adopts a systematic approach to proper essay writing
- b2. Integrate basic grammatical rules

c- Professional and Practical Skills

By the end of the course, the student should be able to

- c1. Utilize proper medical and pharmaceutical terms

c- General and Transferable Skills

By the end of the course, the student should be able to:

- d1. Communicate verbally using idea development, paragraph structure, introductions, support, and conclusions.

3. Contents

Teaching week	TOPIC	No. of lecture hours	No. of Practical hours
1	Training in reading	2	0
2	Training in reading	2	0
3	Training in comprehension	2	0
4	Training in comprehension	2	0
5	Training in basic grammar rules	2	0
6	Training in basic grammar rules	2	0
7	First periodic exam	2	0
8	Training in writing and translation	2	0
9	Training in writing and translation	2	0
10	A systematic approach to proper essay writing, such as idea	2	0
11	A systematic approach to proper essay writing, such paragraph structure, introductions, support, and conclusions.	2	0
12	Second periodic exam	2	0
Total no of hours		24	
13	FINAL Exam		



Course Specifications **(2015 – 2016)**

4. Teaching and Learning Methods

4.1- Lectures (board, data show)

4.2- Assignments

4.3- Class discussion

5. Student Assessment Methods

5.1. Practical exams to assess knowledge and understanding as well as intellectual skills.

5.2. Written exams to assess all types of skills and mainly general and transferrable skills practice.

Assessment Schedule

Quiz 1	7 th week
Quiz 2	12 th week
Final exam	13 th week; according to semester schedule

Weighting of Assessments

Periodical	20%
Final exam	80%
Total	100%

6. List of References

6.1- Course Notes: Lecture notes in English language

6.2- Essential Books (Textbooks)

1. English for Academic Research: Writing Exercises by Adrian Wallwork

Facilities required for teaching and learning

1. Lecture rooms with data show
2. Procurement of latest edition of the above-mentioned texts and others to update the education process

Course Coordinator: Dr. Hala Rashed

Head of Department: Prof. Mona Hetta

Date: 09 /09/2015

Course specification

Course code:	1602
Course name:	Pharmaceutical Organic Chemistry I
Credit hours of the course:	Lecture: 2 Practical: 1 Total: 3
Pre-requisite of the course:	None
Department teaching the course:	Pharmaceutical Medicinal Chemistry Department
Program for which the course is given:	General Pharmacy Program
Course Co-ordinator:	Dr Mohammed Ibrahim Abdel_Latif Hamed. Dr/ Mohammed Mahmoud El_Agawany
Head of the Department:	Prof. Dr./ Mona Hetta
Date of specifications approval	09/2015



b-professional information

1-Overall aims of the course:

Upon successful completion of this course, the students will develop various competencies based on covering the following general outlines:

- To make student think logically about atomic and molecular properties in addition to their interactions.
- To enable students to know how to deal with the reactions of organic compounds. the investigation of their properties and the relation between their molecular structure and their reaction mechanism.
- To prepare student with a sound understanding of the fundamental principles of organic and pharmaceutical compounds with respect to related subjects next years.

2-Intended learning outcomes (ILO's):

Knowledge and Understanding:

By the end of this course, the student should be able to:

a1-Know the basic concepts of aromaticity and chemistry of arenes

a2-Know the characteristics of chemistry of benzenoids and polynuclear compounds

a3-Understand The basics of spectroscopy and spectral analysis of organic compounds

Intellectual Skills:

By the end of this course, the student should be able to:

b1- Recognize organic compounds from their physical and chemical properties.

b2- Discuss organic problems of different organic classes.

b3- Apply suitable methods for synthesis, purification, and identification of chemical substances from different origins.

b4- Analyze and interpret experimental studies as well as data from published literature using spectroscopy.

c- Professional and Practical Skills:

By the end of this course, the student should be able to:

c1-Select the appropriate methods for identification and synthesis of organic compounds

c2- Identify aromatic organic compounds and carbohydrates physically and chemically.

c3- Analyze spectral data of organic compounds.

d-General Skills:

By the end of this course, the student should be able to:

d1- Use the literature via different information sources including the library, internetetc.

d2- Care about himself, his colleagues and all the tools and instruments of his lab during dealing with chemical organic compounds

3-course contents

Topics	lecturer	lecture	practical	total
Introduction to Organic Chemistry-1 Lab safety rules and Policies, systematic identification of an organic compound	Dr/Mohammed Ibrahim	2	1	1
Alkanes, cycloalkanes, & alicyclic compounds: Preparation & Reactions	Dr/Mohammed Ibrahim	2	1	1
Alkenes & Alkynes Preparation & Reactions	Dr/Mohammed Ibrahim	2	1	1
Isomerism & Stereochemistry, Stereoisomers ChemSketch Drawing Software	Dr/Mohammed Ibrahim	2	1	1
Molecular representation, Numbering & Naming of Stereoisomers	Dr/Mohammed Ibrahim	2	1	1
Compound with 2 or more chiral atoms, chiral cyclic compounds, racemization and resolution	Dr/Mohammed Ibrahim	2	1	1
Conformational Analysis Melting point determination	Dr/Mohammed El Agawany	2	1	1
Aromaticity & Aromatic ions Recrystallization	Dr/Mohammed El Agawany	2	1	1
Aromatic substitution reactions & directing group Recrystallization	Dr/Mohammed El Agawany	2	1	1

Introduction to mass spectro fragmentation and Mc-Lafferty rearrangement	Dr/Mohammed El Agawany2	2	1	1
Introduction infrared, Hook low, region of different type of function groups.	Dr/Mohammed El Agawany	2	1	1
Introduction to NMR, type uses in life. H-NMR. Chemical Shift and TMS. Chemical shift of different type of protons. ¹³ C-NMR (chemical shift. Problems on C-NMR)	Dr/Mohammed El Agawany	2	1	1
total		24	12	36

4-Teaching and Learning Methods (lectures, open discussion, role plays, etc):

4.1- Lectures (board, overhead projector, molecular models, software chemistry programs and data show)

4.2- Tutorials and discussion sessions

4.3- Practical sessions

5- Student Assessment:

a-Assessment Methods and Weighing:

Quiz to assess the knowledge, understanding and intellectual skills of the course.

Mid-Term written exam to assess the knowledge, understanding and intellectual skills of the previously studied sections of the course.

Practical exam to assess the practical and professional skills gained by the students.

Final written exam to assess all the knowledge and understanding of the different sections of the course.

Oral examination to assess all the intellectual skills and knowledge of the different sections of the course.

1) Class participation: 20%

2) Practical exam: 30%

3) Oral exam: 20%

4) Final exam: 80%.

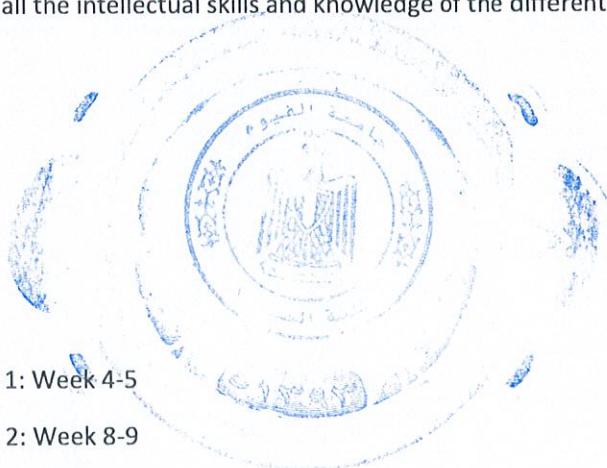
b-Assessment Schedule:

Class participation Quiz 1: Week 4-5

Quiz 2: Week 8-9

Other activities: throughout the semester

Practical exam: Week 13-14



Oral exam: According to semester timetable

Final exam: According to semester timetable

6-list of references

Course Notes	On ELS
Required Books	T.W.Graham Solomons, Organic chemistry, 11th ed., John Wiley and Sons, INC, New York, 2013. Furniss, Hanna Ford, Smith, Tutchell, Vogel's textbook of Practical Organic Chemistry, 5th ed, Longman Group UK Ltd, England, 1989. Finar Organic Chemistry 6th Edition published by Pearson Education (Singapore) Pte. Ltd, Indian Branch, printed in India by A.P. offset Pnt. Ltd. Organic Chemistry 4th Edition by Janice Gorzynski Smith, 2013
Recommended Books	Jerry March, Advanced Organic Chemistry, Reactions, Mechanisms.
Periodicals	Different pharmacopoeias (Egyptian & british)
Web Sites	J. Org. Chem., J. Med. Chem., Tetrahedron letters, J. Am. Chem. Soc., Khan Academy and https://www.educator.com//chemistry/organic-chemistry

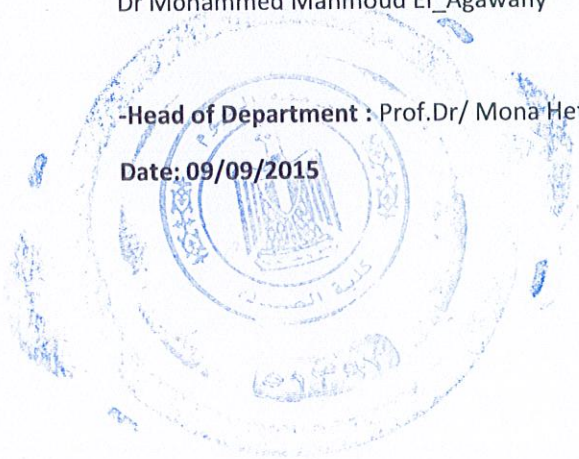
Course Coordinator:

Dr/Mohammed Ibrahim Abdel Latif Hamed.

Dr Mohammed Mahmoud El_Agawany

-Head of Department : Prof.Dr/ Mona Hetta

Date: 09/09/2015





Course Specifications
(2015 –2016)

Medicinal plants

1201





Course Specifications (2015 –2016)

Course Specifications

A- Basic information

Program(s) on which the course is given	Bachelor of clinical pharmacy
Department offering the course	Pharmacognosy department
Faculty offering the program	Faculty of Pharmacy, Fayoum University
Dept. responsible for teaching the course	Pharmacognosy department
Academic year / level	First level, first semester
Course title	Medicinal plants
Course code	1201
Contact hours (credit hours)	Lecture 2 (2) + Practical 2 (1): Total 4 (3)
Pre-requisite of the course:	Registration
Course coordinator	Prof. Mona Hetta
Major or Minor element of program	Major
Date of specification approval	09/9/2015

B-Professional Information

1-Overall aims of the course:

Upon successful completion of this course, the students will gain the basic knowledge about the process of commercial production of medicinal plants including; cultivation, drying, packing and authentication. Students will also be able to demonstrate basic concepts of pharmacognosy and relate medicinal actions of some medicinal plants composed of leaves to their content of secondary metabolites

2-Intended learning outcomes (ILO's):

a-Knowledge and Understanding:

By the end of this course, the student should be able to:

- a1. define Pharmacognosy and other botanical terms.
- a2. Describe herbal drugs according to botanical origin, chemical constituents, medicinal activity, and difference between wild and cultivated plants

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Course Specifications (2015 –2016)

- a3. Mention different methods of cultivation, collection, drying, packing and storage, adulteration of medicinal plants.
 - a4. Memorize different classes of secondary metabolites and their chemical identification.
 - a5. Identify natural drugs, especially leaves, macro-, micro-morphologically, chemically, and animal drugs.
- b-Intellectual Skills:**

By the end of this course, the student should be able to:

- b1. Apply different concepts about plant cultivation, drying, storage, and adulteration..
 - b2 . Compare between different secondary metabolites.
 - b3. Recognize the difference between various morphological characters that enable students to recognize medicinal leaves.
- c-Professional and Practical Skills:**

By the end of this course, the student should be able to:

- c1. Handle microscope and chemicals.
- c2. Examine different dusting powders microscopically.
- c3. Demonstrate unknown plant leaves microscopically

d-General Skills:

At the end of this course, the student must be able to:

- d1. Work in a team to differentiate between several types of medicinal plants.
- d2. Deal with internet to collect data and prepare a research project about different natural products.



Course Specifications (2015 –2016)

3. Contents

Teaching week	TOPIC	No. of lecture credit hours	No. of practical credit hours
1	Introduction of medicinal plants (definitions, etc.....) ,	2	
	Lab safety		1
2	Cultivation of medicinal plants, environmental condition , soil composition , growth regulators	2	
	Microscopy, how to make a mount (mount in water, iodine)		1
3	Collection, drying of crude drugs, different types of adulteration and their detection	2	
	Starches		1
4	Packing and preservation of drugs, plant growth regulators.	2	
	Dusting powders		1
5	Secondary plants metabolites (simple phenolics, flavonoids, Alkaloids)	2	
	Isolated elements, Introduction to leaves + Senna (Powder)		1
6	Secondary plant metabolites (glycosides)	2	
	Solanaceous Introduction, Belladonna (Powders)		1
7	Taxonomy	2	
	Datura + Hyoscyamus (Powder)		1
8	Plant cytology	2	
	Digitalis (Powder)		1
9	Introductions of drugs composed of leaves (Leaf morphology, lamina)	2	
	Revision (Starch & Dusting)		1
10	Senna leaf	2	
	Revision (Vegetable powder)		1
11	Solanaceous leaves: Belladonna, Stramonium, Hyoscyamus	2	
	Exam		1
12	Digitalis, Henna and other medicinal leaves	2	
Total no of hours		24	11

4-Teaching and Learning Methods (lectures, open discussion, role plays, ...etc):

4.1 Interactive Lectures



Course Specifications **(2015 –2016)**

- 4.2 Presentations, discussions and seminar
- 4.3 Research in library and web.
- 4.4 Practical laboratory work

5- Student Assessment:

Assessment Schedule:

Quiz 1	4 th week
Quiz 2	10 th week
Final practical exam	11 th week
Final written exam	13 th week

Weighting of Assessments

Assessment method	Weight
Quiz 1	10%
Quiz 2	10%
Activities	30%
Final practical exam	80%
Final written exam	20%
Oral exam	

6-List of References:

- 6.1 **Course notes:** on ELS
- 6.2 **Essential books (textbooks):**
 - Evans, W.C., Trease and Evans Pharmacognosy, Edinburgh, London, New York, Oxford, Philadelphia, St. Louis and Toronto, 16th edition, Elsevier, 2010
- 6.3 **Recommended books:**
 - Narayana, P.S., Pullaiah, T., Varalakshmi, D., Vol 2 (2014), Textbook of Pharmacognosy, CBS Publishers.
 - Heinrich, M., Barnes, J. Gibbons S. and E.M. Williamson, Fundamentals of Pharmacognosy and Phytotherapy, 2nd edition, 2012.
 - Egyptian Pharmacopoeia, English Text (2005).
- 6.4 **Periodicals, Web sites, Etc:**
 - www.Bestnetcraft.com
 - www.herbdatanz.com/index.htm
 - www.who.int/medicines/library/trm/medicinalplants
 - www.herb.com

7- Facilities required for teaching and learning:

- Lecture halls



Course Specifications **(2015 –2016)**

- Laboratories, supplied with data show.
- White board.
- Books, library furnished with textbooks.
- Genuine plant drugs.
- Optical microscopes in labs.
- Slides and covers.
- Chemicals and reagents.
- Grinder.

Teaching Staff: Dr. HossamMokhtar – Prof, Mona Hetta

Course Coordinator: Prof. Dr. Mona H. Hetta

Head of Department: Prof. Dr. Mona H. Hetta

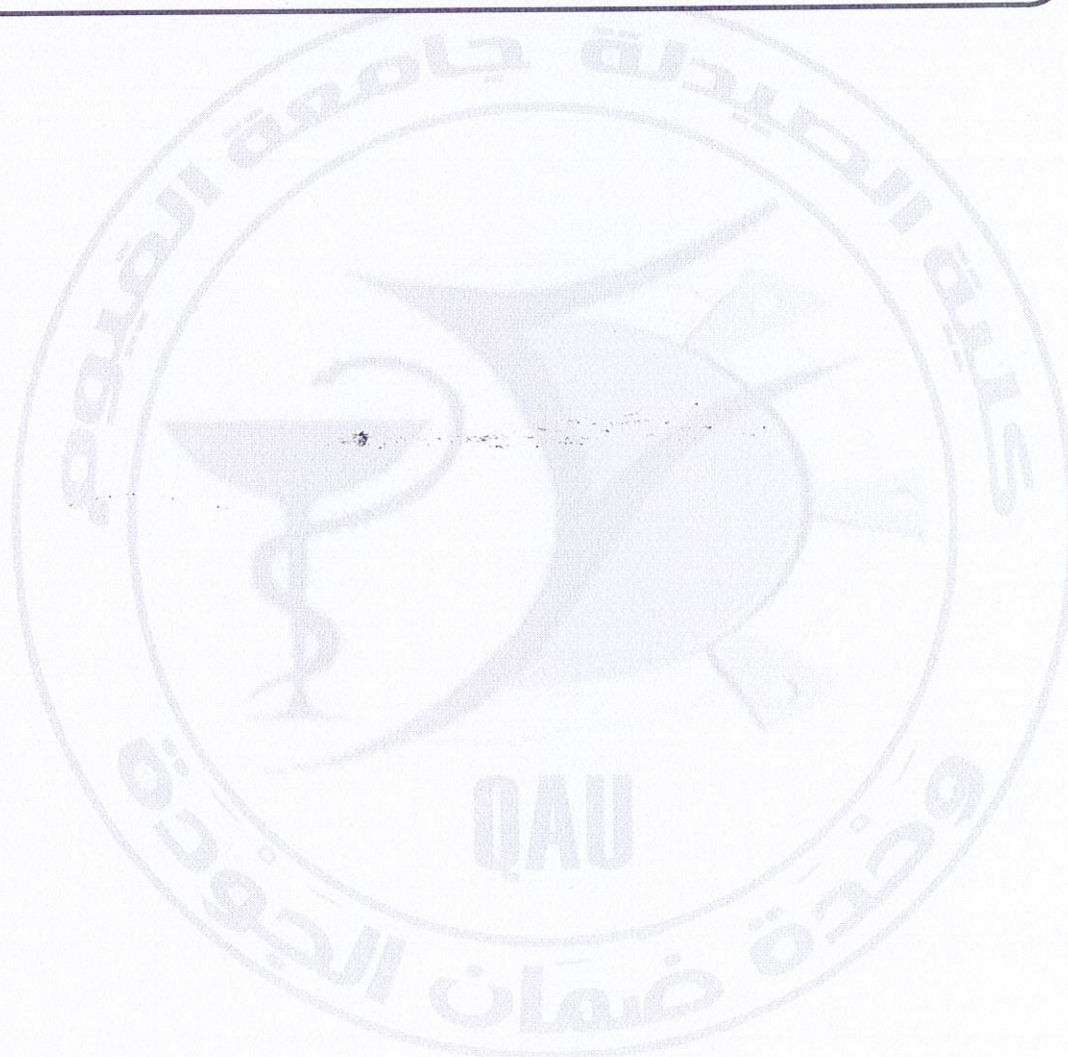
Date: 09/9/2015



Course Specifications
(2015 – 2016)

Course: Mathematics and Statistics

Course code: 1503





Course Specifications (2015 – 2016)

A. Basic Information

Program(s) on which the course is given: General
Department offering the course: Organic and pharmaceutical chemistry
Faculty offering the program: Pharmacy
Dept. responsible for teaching the course: Mathematical sciences
Academic year / level: First level / first semester
Course title: Mathematics and Statistics
Course code: 1503
Contact hours (credit hours): 2
Pre-requisite of the course: Non
Course coordinator: Dr. Maged Kassab
Major or Minor element of program: Minor
Date of specification approval: 09/09/2015

B. Professional Information

The course aim and intended learning outcomes are based on that mentioned in the programme specifications, with more course-related specific details.

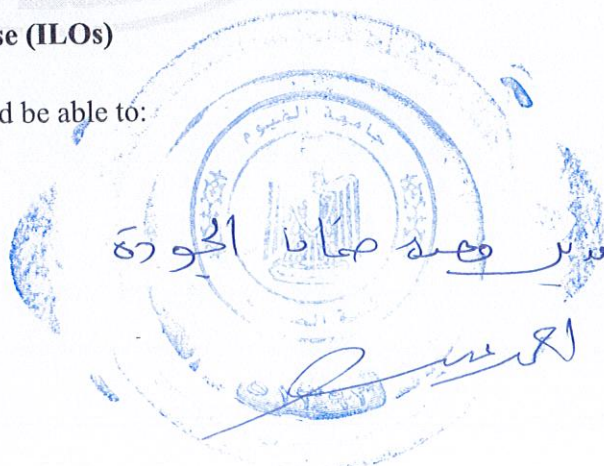
1. Overall Aims of Course

The aim of the course is to provide students with a detailed knowledge and understanding of functions and graphs, limits and continuity, differentiation, exponential, logarithmic and trigonometric functions, integration, basic differential equations, function of several variables and problems related to them. The course also provides the students necessary knowledge of the probability, random variables and correlation and regression as well as hypothesis testing.

2. Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

By the end of the course, the students should be able to:





Course Specifications (2015 – 2016)

- a1. Understand the theoretical mathematical principal of functions and graphs
- a2. Understand of the differentiation, exponential, logarithmic and trigonometric functions.
- a3. Identify the concept of integration, basic differential equations.
- a4. Recognize the concept of hypothesis testing.

b- Intellectual Skills

By the end of this course, the student should be able to:

- b1. Perform different mathematical and statistical calculations
- b2. Distinguish the different type of functions and equation differentiation and integration
- b3. Solve some problems encountered in hypothesis testing

c- Professional and Practical Skills

By the end of the course, the student should be able to:

- c1. Formulate different mathematical and statistical calculations
- c2. Evaluate a successful formula related to different equation differentiation and integration
- c3. Design some probability and hypothesis testing

d- General and Transferable Skills

By the end of the course, the student should be able to:

- d1. Work independently in different mathematical and statistical calculations software.
- d2. Apply problem-solving skills for the mathematical and statistical calculations within the practice of pharmacy fields.
- d3- Develop effective communication skills and critical thinking.

The aim of the course is to provide students with a detailed knowledge and understanding of functions and graphs, limits and continuity, differentiation, exponential, logarithmic and trigonometric functions, integration, basic differential equations, function of several variables and problems related to them. The course also provides the students necessary knowledge of the probability and random variables as well as hypothesis testing.



Course Specifications (2015 – 2016)

3. Contents

Teaching week	TOPIC	No. of lecture hours
1	Functions and Graphs 1	1
2	Functions and Graphs 2	1
3	limits and continuity	1
4	Differentiation 1	1
5	Differentiation 1	1
6	Quiz 1	1
7	Integration 1	1
8	Integration 2	1
9	Quiz 2	1
10	Probability	1
11	Correlation and regression	1
12	Hypothesis testing 1	1
13	Hypothesis testing 2	1
Total no of hours		
14	FINAL Exam	

4. Teaching and Learning Methods

4.1- Lectures (board, data show)

4.2- Assignments

4.3- Class discussion

5. Student Assessment Methods

5.1. Written exams to assess knowledge and understanding as well as intellectual skills.

5.2. Worksheets and assignments to assess all types of skills and mainly general and transferrable skills practice.

Assessment Schedule

Quiz 1

4th or 5th week

Quiz 2

8th or 9th week

Practical exam

Final exam

14th week; according to semester schedule

Oral exam



Course Specifications (2015 – 2016)

Weighting of Assessments

Periodical	20%
Final exam	80%
Oral exam	-----
Total	100%

6. List of References

Rouaud, Mathieu. (April 2017) [First published July 2013]. Probability, Statistics and Estimation (PDF). p. 10. Archived (PDF) from the original on October 9, 2022. Retrieved February 13, 2024.

6.1- Course Notes: Lecture Notes

6.2- Essential Books (Textbooks)

6.3- Periodicals:

6.4- Web Sites:

Facilities required for teaching and learning

1. Lecture rooms with data show
2. Procurement of the latest edition of the above-mentioned texts and others to update the education process

Course Coordinator: Dr. Maged Kassab

Head of Department: Prof. Mona Hetta

Date: 09 /09/2015

Course Specifications

Pharmacy History and Orientation (1101)

**Level 1
Semester 1**

General Pharmacy Program

Course Specification

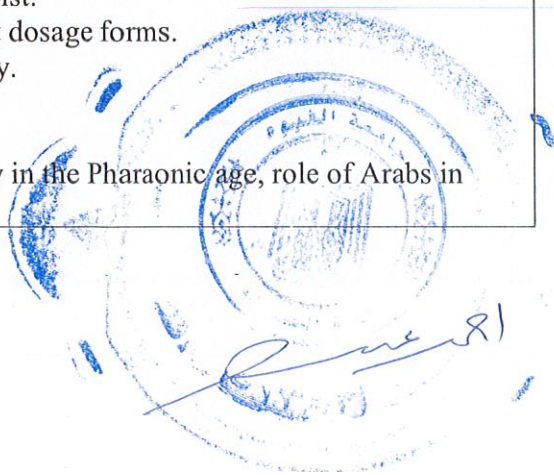
A-Basic Information	
Course code:	1101
Course name:	Pharmacy History and Orientation
Credit hours of the course:	Lecture: 2 Practical: -- Total: 2
Pre-requisite of the course:	Registration
Department teaching the course:	Department of Pharmaceutics
Program for which the course is given:	General Pharmacy Program
Course Co-ordinator:	Dr/Eman Ahmed Mazyed
Head of the Department:	Dean of the Faculty of pharmacy
Date of specifications approval:	09-09-2014

B-Professional Information

1- Overall aims of the course:

At the end of this course the student should be able to understand:

- o The importance of pharmacy and the role of pharmacist.
- o Different routes of drug administrations and different dosage forms.
- o Medical terminology and pharmaceutical terminology.
- o Rational use of drugs.
- o Ethics of pharmacy, Self-care and Self-medications.
- o The history of pharmacy and a focus about Pharmacy in the Pharaonic age, role of Arabs in pharmacy.



General Pharmacy Program

2- Intended learning outcomes (ILO's):

a-Knowledge and Understanding:

By the end of this course the student should be able to:

- a1. Define pharmacy, drug and classification of drugs.
- a2. Recognize pharmacy profession, prescription parts, difference between types of pharmaceutical dosage forms.
- a3. Describe the scope of patient services, drug services, and the prescription.
- A4. Understand various roles & ethics of pharmacy.
- a5. Plain different types of pharmaceutical dosage forms, the routes of drug and factor affecting them.
- a6. know the history of pharmacy.

b-Intellectual Skills:

By the end of this course, the student should be able to:

- b1. Distinguish between the units of weight, volume and length.
- b2. Apply pharmaceutical knowledge in the formulation of safe and effective medicines as well as in dealing with new drug delivery systems.
- b3. Apply pharmaceutical knowledge about prescriptions and how to prepare them in proper way.
- b4. Control possible physical and/ or chemical incompatibilities that may occur during drug dispensing.

c-Professional and Practical Skills:

By the end of this course, the student should be able to:

- c1. Use the proper pharmaceutical and medical terms, abbreviations and symbols.
- c2. Advise patient and other health care professionals about safe and proper use of medicines.
- c3. Calculate the dose for children, weight, volume and length.

d-General Skills:

By the end of this course, the student should be able to:

- d1. Use computer and modern technologies
- d2. Gain the skills of self- learning and presentation.
- d3. Work in group.

General Pharmacy Program

3- Course contents:

Topic	No. of hours		
	Lecture	Practical	Total
History of Pharnacy(in Arabic)	2	--	2
History of pharmacy (cont.)	2	--	2
History of pharmacy (cont.)	2	--	2
Scope of pharmacy, the functions of pharmacist and Drug information resources	2	--	2
Routes of drug administrations	2	--	2
Dosage forms	2	--	2
Examples of medical terminology and pharmacy terminology	2	--	2
Rational use of drugs, Pharmaceutical care, self-care and self-medications	2	--	2
Ethics in pharmacy	2	--	2
Standard of practice	2	--	2
Prescriptions	2	--	2
Different types of incompatibilities, and how can we solve them	2	--	2
Revision	2	--	2
Total	26		26

4- Teaching and Learning Methods (lectures, open discussion, role plays,...etc):

- Lectures, Power point presentation
- Open discussion
- Research assignment.....

General Pharmacy Program

5- Student Assessment:

a- Assessment Methods and Weighing:

- Class participation: 20%
- Final Exam: 80%

b- Assessment Schedule:

- Class participation: Quiz 1: Week 4-5
Quiz 2: Week 8-9
Other activities: throughout the semester
- Practical Exam:
- Oral Exam: According to semester timetable
- Final Exam: According to semester timetable

6- List of References:

Course Notes	Course notes, Hand outs
Required Books	Pharmacy: An Introduction to the Profession, L. Michael Posey, 2nd Edition, 2008
Recommended Books	Pharmaceutics, the science of dosage form design, M.E.Aulton, 2006. - Ansel's pharmaceutical dosage forms and drug delivery systems, L.V. Allen, N.G. Popovich, H.C. Ansel, 2005.
Periodicals	J. Pharm. Sci., Int. J.Pharm., J.P harm.larmacol., Ind.Pharm., Pharmazie, Drug Devel. Ind. Pharm., E- book
Websites	--

Course Coordinator: Dr. Eman Ahmed Mazyed

Head of Department: Prof. Dr. Mona Hetta

Date: 09/09/2014



Course Specifications
(2016 –2015)

Pharmaceutical Analytical Chemistry I
1602





Course Specifications **(2016 –2015)**

Pharmaceutical Analytical Chemistry

A. Basic Information

Program(s) on which the course is given	Bachelor of Pharmacy (General)
Department offering the course	Pharmaceutical Analytical Chemistry department
Faculty offering the program	Faculty of pharmacy, Fayoum University
Dept. responsible for teaching the course	Pharmaceutical Analytical Chemistry department
Academic year / level	First level, first semester
Course title	Pharmaceutical Analytical Chemistry I
Course code	1602
Contact hours (credit hours)	Lecture 2 (2) + Practical 2 (1): Total 4 (3)
Pre-requisite of the course:	Registration
Course coordinator	Dr. Hany Mohamed Gamal
Major or Minor element of program	Major
Date of specification approval	09/09/2014

B. Professional Information

1. Overall Aims of Course

1. The aim of the course is to provide students with the theoretical basis and practical aspects of the different methods of different quantitative (acid-base, precipitometric) analysis.
2. Develop the practical skills in analyzing chemical compounds that enable the graduate to communicate efficiently and effectively with health care professionals.
3. Use educational methods that make graduates be life-long learner, creative researcher and effective participant in healthcare of the community.
4. Acquire the ability of integration, information evaluation and solving diverse analytical problems in an efficient way.

2. Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

By the end of the course, the students should be able to:

- a1- Explain the basic principles of quantification of different chemicals
- a2- Acquire much information about different quantitative analytical methods.
- a3- Recognize the suitable analytical methods for identification of different pharmaceuticals
- a4- Understand the basics of some physico chemical specifications as pH, pK_a , K_{sp} of various materials used in pharmaceutical preparation.



Course Specifications **(2016 –2015)**

- a5- Recall the basic principles of pharmaceutical science including calculations of concentration, writing chemical formulas, determination of percent purity.
- a6- Define the basic principles of chemical reactions, chemical equilibria and balance chemical equations.
- a7. Recall the basic principles of quantitative (acid-base, precipitometry) chemical analysis of cations and anions.

b- Intellectual Skills

By the end of this course, the student should be able to:

- b₁- . Select appropriate analytical methods required for conformity of specifications of raw material.
- b₂- Assess different methods for quantitative chemical analysis of different substance.
- b₃- . Describe an analytical scheme for analysis of cations and anions.
- b₄ - Write a report on analysis of a chemical substance.
- b₅- Demonstrate the principles and limitations of practical techniques.

c- Professional and Practical Skills

By the end of the course, the student should be able to:

- c₁. Apply the safe handling and safe disposal of chemicals according to the ethical and legal guidelines.
- c₂. Apply the practical methods required for quantification of different compounds.
- c₃- Standardize chemical reagents used in acid-base quantitative analysis.
- c₄- Analyze different pharmaceutical substances through acid-base, & precipitometric analysis.

d- General and Transferable Skills

By the end of the course, the student should be able to:

- d₁. Interact and communicate by verbal and written means with other health care professionals in their own specialized language.
- d₂. Team-working in diverse pharmaceutical & social settings.
- d₃. Keep up with the pharmacy profession and pharmaceutical industry as a life -long independent continuing education post-graduation



Course Specifications (2016 –2015)

d4. Apply proper safety measures according to standard guidelines

d5- work efficiently in laboratory.

d6. Analyze, evaluate information and solve problems.

3. Contents

Teaching week	TOPIC	No. of lecture hours	No. of practical hours	Assessment of ILOs
1	Introduction, Rate of the reaction	2		a2, b1, d1
	Lab safety		2	
2	Chemical equilibrium	2		a1, a2,a3,b1,b2, c1, c2, d2
	Standerdization		2	
3	Chemical Kinetics	2		a1, a2,a4,b1,b2, c1, c2, d2
	Assay of HCl		2	
4	Introduction to qualitative & quantitative analysis	2		a1, a5,a3,b1,b3, c1, c3, d1,d2
	Assay of HCl/Acetic mixture		2	
5	Acid-base theory	2		a1, a2,a4,b1,b2, c1, c3, d2, d3
	Assay of formaldehyde		2	
6	Acid-base titration curve & buffer. Quiz 1	2		a1, a2,a3,b1,b3, c1, c2, d1,d5
	Assay of KOH		2	
7	Application acid-base titrations.	2		a1, a2,a4,b1,b2, c1, c3, d2, d6
	Assay of salts		2	
8	Application acid-base titrations.	2		a1, a2,a3,b2, c1, c2, d1
	Ksp problems I		2	
9	Precipitometric methods.	2		a2,a3,b1, c1, c2, d1,d6
	Ksp problems II		2	
10	Precipitometric methods. Quiz 2	2		a1, a4,a4, a5, a6, a7 b1,b2, c1, c3, c4 d2
	Revision		2	
11	Precipitometric methods.	2		a2,a4, a5, a6, a7 b1, c1, c2, c4, d1, d5, d6
	Final practical exam			
Total no of hours		22	20	
11 & 12	FINAL Exam			



Course Specifications **(2016 –2015)**

4. Teaching and Learning Methods

- | | |
|---|---|
| 4.1- Lectures (board, data show, power point) | √ |
| 4.2- Interactive learning (Discussions, brain storming) | √ |
| 4.3- Self-study (Tutorials) | - |
| 4.4- Practical (labs, tools, chemicals, glassware, equipment and instruments) | √ |
| 4.5- Other methods (Assignments) | √ |

5. Student Assessment Methods

- 5.1. Written exams to assess knowledge and understanding as well as intellectual skills.
- 5.2. Oral exams to assess all types of skills and mainly general and transferrable skills practice.
- 5.3. Practical exams

Assessment Schedule

Quiz 1	5 th week
Quiz 2	9 th week
Practical exam	11 th week
Final exam	12 th week
Oral exam	12 th week

Weighting of Assessments

Periodical	20%
Practical	30%
Final exam	80%
Oral exam	20%
Total	150%

6. List of References

6.1- Course Notes

Compiled by the department



Course Specifications **(2016 –2015)**

6.2- Essential Books (Textbooks)

- J. Mendham, R.C. Denney, J.D. Barnes and M.J.K. Thomas “Vogel’s Textbook of quantitative chemical analysis” by Pearson education (6th edition) 2004
- R.de Levie “principles of quantitative chemical analysis” by Mc Graw-HillCompanies.inc.1997.
- G. D. Christin “Analytical chemistry” by John Wiley & sons inc. (5th edition) 1994

6.3- Periodicals

- Analytical letters
- J. pharmaceutical and biomedical analysis
- Analytical chemistry

6.4- Web Sites

<https://www.degruyter.com/view/journals/revac/revac-overview.xml>

7. Facilities required for teaching and learning

1. Lecture rooms with data show
2. Procurement of latest edition of the above-mentioned texts and others to update the education process

Course Coordinator: Dr. Hany Mohamed Gamal

Head of Department: Pr. Mona Hetta

Date: 09 /09/2015



Course Specifications
(2015 –2016)

Physical and inorganic Chemistry

1601





Course Specifications
(2015 –2016)

Name of Department: Pharmaceutical Analytical Chemistry

A. Basic Information

Program(s) on which the course is given:	Bachelor of pharmacy
Department offering the course:	Pharmaceutical Analytical Chemistry department
Faculty offering the program:	Faculty of pharmacy, Fayoum University
Dept. responsible for teaching the course:	Pharmaceutical Analytical Chemistry department
Academic year / level:	first level, first semester
Course title:	Physical and inorganic Chemistry
Course code:	1601
Contact hours (credit hours):	Lecture 2 (2) + Practical 2 (1): Total 4 (3)
Pre-requisite of the course:	Registration
Course coordinator:	
Major or Minor element of program:	Major
Date of specification approval:	09 / 09 /2015

B. Professional Information

1. Overall Aims of Course

1. Understand the fundamental concepts of thermodynamics, chemical equilibrium, and kinetics.
2. Apply the principles of gas laws, solutions, and colligative properties to pharmaceutical systems.
3. Analyze the thermodynamic properties of chemical reactions and predict spontaneity.
4. Interpret and solve problems related to chemical kinetics and reaction mechanisms.
5. Develop proficiency in understanding the behavior of acids, bases, and buffers in pharmaceutical applications.
6. Apply the concepts of electrochemistry to processes such as corrosion, redox reactions, and electrolysis.

مراجعة صفات الجودة



Course Specifications (2015 –2016)

7. Evaluate molecular structure, bonding theories, and periodic trends and their impact on chemical behavior.
8. Utilize theoretical knowledge to explain physical properties of matter and their application in drug formulation and stability.

2. Intended Learning Outcomes of Course (ILOs)

After successful finishing the course, students should be able to

a- Knowledge and Understanding:

By the end of the course, the students should be able to:

- a1- Understand fundamental concepts of physical and inorganic chemistry and their applications in pharmaceutical sciences.
- a2- Understand chemical kinetics, thermodynamics, and electrochemistry and how they relate to drug formulation and stability.

b- Intellectual Skills:

- b1- Critically evaluate the physical properties of drugs and inorganic compounds for pharmaceutical use.
- b2- Solve problems related to chemical reactions, energy changes, and drug interactions using theoretical concepts.

c- Professional and practical Skills:

- c1- Perform laboratory experiments to synthesize and analyze inorganic compounds used in pharmacy.
- c2- Apply principles of physical chemistry in practical pharmaceutical settings, such as drug formulation and stability testing.

d- General and Transferable Skills:

- d1- Collaborate efficiently in a team to solve chemistry-related problems in pharmaceutical contexts.
- d2- Demonstrate time management skills, especially in conducting experiments and managing lab work.
- d3- Apply critical thinking and independent learning to enhance understanding and skills in chemistry relevant to pharmacy practice.



Course Specifications (2015 –2016)

2. Contents

Teaching week	TOPIC	No. of lecture hours	No. of practical hours	Assessment of ILOs
1	Introduction to Physical and General Chemistry: Importance and Applications in Pharmacy	2		a2, d1, c2, b2
	Lab safety		2	
2	Gaseous State: Gas Laws, Kinetic Molecular Theory, and Ideal vs. Real Gases	2		a1, a2, b1, c1, d2
	Measurement of Gas Laws: Boyle's Law and Charles' Law		2	
3	Thermodynamics I: Basic Concepts of Energy, Work, and Heat	2		a1, a2, b1, c1, d2
	Determination of Enthalpy Changes in Chemical Reactions (Calorimetry)		2	
4	Thermodynamics II: Laws of Thermodynamics and Their Pharmaceutical Applications	2		a1, b1, c1 d1, d2, b2
	Measurement of Equilibrium Constant for a Chemical Reaction		2	
5	Chemical Equilibrium: Principles and Applications in Drug Reactions	2		a1, b1, c1, d2, d3
	Preparation of Solutions: Molarity, Molality, and Percent Solutions		2	
6	Solutions and Their Properties: Concentration, Solubility, and Colligative Properties	2		a1, a2, b1, c1, d1
	Determination of Colligative Properties: Freezing Point Depression		2	
7	Molecular Structure and Bonding: Lewis Structures, VSEPR, and Hybridization	2		a1, a2, b1, c1, c3, d2
	Reaction Rate Studies: Determining the Effect of Concentration on Rate		2	
8	Electrochemistry: Galvanic Cells, Corrosion, and Pharmaceutical Relevance	2		a1, a2, c1, c2, d1
	Construction of a Galvanic Cell and Measurement of Electrode Potentials		2	
9	Chemical Kinetics I: Rate Laws and Factors Affecting Reaction Rates	2		a2, b1, c1, d1, b2
	Investigating the Effect of Temperature on Reaction Rate (Arrhenius Equation)		2	
10	Chemical Kinetics II: Reaction Mechanisms and Catalysis in Pharmaceutical Reactions	2		a1, b1, c1, d2
	Determination of Molecular Structure Using VSEPR Models		2	
11	Intermolecular Forces: Impact on Drug	2		a2, b1, c1, d3, c2



Course Specifications (2015 –2016)

	Stability and Properties			
	Final practical exam			
Total no of hours 11 & 12		22	20	
	FINAL Exam			

4. Teaching and Learning Methods

- 4.1- Lectures (board, data show, power point) ✓
- 4.2- Interactive learning (Discussions, brain storming) ✓
- 4.3- Self-study (Tutorials) -
- 4.4- Practical (labs, tools, chemicals, glassware, equipment and instruments) ✓
- 4.5- Other methods (Assignments) ✓

5. Student Assessment Methods

- 4.1- Mid erm exam to assess ILO's a1, a2
- 4.2- Practical exam to assess ILO c1and d2
- 4.3- End-term exam to assess ILO's a, c
- 4.4- Oral exam to assess ILO's a1, c

Assessment Schedule

Quiz 1	4 th or 5 th week
Quiz 2	8 th or 9 th week
Practical exam	11 th week
Final exam	12 th week
Oral exam	12 th week

Weighting of Assessments

Periodical	20%
Practical	30%
Final exam	100%
Total	150%



Course Specifications **(2015 –2016)**

6. List of References

1. Essential Books (Text Books)
2. Principles of Chemistry: A Molecular Approach by Nivaldo J. Tro.
3. General Chemistry: The Essential Concepts by Raymond Chang and Jason Over
4. Physical Chemistry by Peter Atkins and Julio de Paula
5. Quantitative Chemical Analysis by Daniel C. Harris
6. Chemistry: The Central Science by Theodore L. Brown
7. H. Eugene LeMay, Bruce E. Bursten, and Catherine J. Murphy
8. Journal of Chemical Education
9. Analytical Chemistry
10. Royal Society of Chemistry (RSC) Publications

7. Facilities required for teaching and learning

1. Classrooms.
2. Laboratory facilities.
3. white board, smart board, Data show.
4. Library.
5. Computers.
6. Online educational platforms for teaching, discussing research projects and E-exams (Google classrooms, Google drive and Microsoft Teams).

Course Coordinator: Dr. Abobakr Abdel Wahab

Head of Department: Prof./ Mona Hetta

Date: 09/09/2015





Fayoum University



Faculty of Pharmacy

General Pharmacy Program

Course Specifications

A-Basic Information	
Course code:	1301
Course name:	Anatomy
Credit hours of the course:	Lecture: 1 Practical: 1 Total: 2
Pre-requisite of the course:	No
Department teaching the course:	Faculty of Medicine, Anatomy and Histology Department
Program for which the course is given:	General Pharmacy Program
Course Co-ordinator:	
Head of the Department:	Prof. Mona Hetta
Date of specifications approval:	20/09/2015

B-Professional Information
1-Overall aims of the course:
The course aims to enhance the student's knowledge about anatomy of skeletal system, muscular system, articular system, fascia, cardio-vascular system, lymphatic system, nervous system, digestive system, respiratory system, euro-genital system, endocrine glands, cytology and blood as well as structure of liver, spleen, lungs, kidney, lymph nodes, cardiac muscle, stomach, intestine and Aorta.
2-Intended learning outcomes (ILO's):
a- Knowledge and Understanding:

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By the end of this course, the student should be able to:

- a1- Mention basic concepts of human anatomy of systems of the body.
- a2- Identify anatomical principles for systems of the body related to human health and diseases
- a3- Label human anatomy of systems of the body

b-Intellectual Skills:

By the end of this course, the student should be able to:

- b1- Summarize information from a number of sources in order to gain a coherent understanding of human anatomy of systems of the body
- b2- Analyze the function of systems of the body.
- b3- Outline the organs of each system.

c-Professional and Practical Skills:

By the end of this course, the student should be able to:

- c1- Apply understanding of human anatomy of systems of the body demonstration of evidence based practice.

d-General Skills:

By the end of this course, the student should be able to:

- d1- Develop communication with the internet critically as a source of information about human anatomy of systems of the body
- d2- Organize working as a team member in collecting valuable information of evidence-based practice.

3-Course contents:			
	No of hours		
	Lecture	Practical	Total
Introduction& terminology	1	1	2
Skin and fascia	1	1	2
Skeletal system and Muscles	1	1	2



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Articular system	1	1	2
Cardiovascular system	1	1	2
Respiratory system	1	1	2
Digestive system	1	1	2
Urinary system	1	1	2
Genital system and glandular system	1	1	2
Lymphatic system	1	1	2
Nervous system	1	1	2
Blood and cytology	1	1	2
Total	12		24

4-Teaching and Learning Methods (lectures, open discussion, role plays, ..etc):

- Lectures.
- Practical sections.
- Open discussion.
- Assignments.
- Role plays.

5- Student Assessment:

a-Assessment Methods and Weighing:

- Written exams evaluate the levels of knowledge and understanding and Intellectual Skills.
- Periodic exams evaluate the levels knowledge and understanding and Intellectual Skills.
- Practical exams evaluate the levels of the practical Skills.
- Class participation: 10. %
- Practical exam: 20 %
- Oral exam: 10%
- Final exam: 60 %

b-Assessment Schedule:



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- Class participation: Quiz 1: Week 4-5
Quiz 2: Week 8-9
Other activities: throughout the semester
- Practical exam: Week 12
- Oral exam
- Final exam: According to semester timetable

6-List of References:

Course Notes	- Human Anatomy and Histology department Book - Practical book of Anatomy for medical students' course
Recommended Books	- Snell, R.: Clinical Anatomy, 7th edition, 2002 Lippincott, Williams & Wilkins.q2w - Before we are born. By K.L. Morre and T.V.N. Persaud,
Web Sites	- Gray anatomy - www.innerbody.com - Anatomy & Physiology

Course Coordinator:

Head of Department: Prof. Mona Hetta

Date: 20/09/2015



Course Specifications

**Computer Science
(1104)**

**Level 1
Semester 2**

Course Specification

A-Basic Information	
Course code:	1104
Course name:	Computer Science
Credit hours of the course:	Lecture: 1 Practical: 1 Total: 2
Pre-requisite of the course:	Registration
Department teaching the course:	Pharmaceutics
Program for which the course is given:	General Pharmacy Program
Course Co-ordinator:	Dr. Doaa Helal
Head of the Department:	Prof. Dr. Mona Hetta
Date of specifications approval:	17/9/2016

B-Professional Information
1- Overall aims of the course:
This course enables the students to:
1- Basic concepts of computer and information technology, Introduction to computer programming.
2- Computer networks and essential IOT.
2-intended learning outcomes (ILO'S)
By the end of this course, students will be able to:
Explain the fundamental concepts of computer technology, including hardware, software, and operating systems.

2016/2017

Dr. Doaa Helal

Prof. Dr. Mona Hetta

Identify the components and functions of various input and output devices.

Describe the structure and purpose of data organization within computer systems.

Discuss the main types of application software and their uses in business and personal productivity.

Outline the role of computer networks, the Internet, and email communication in modern computing.

c-Professional and Practical Skills

By the end of this course, the student should be able to:

c1. Demonstrate different Pharmaceutical semi-solid dosage forms.

c2. Prepare different types of suppositories on small scales.

c3-Use chemical and physical tests on a dosage forms to determine their quality control

c4. Analyze manufacturing requirements for parenteral formulations and ophthalmic dosage forms.

d-General Skills:

By the end of this course, the student should be able to:

d1. Use internet in research and communications.

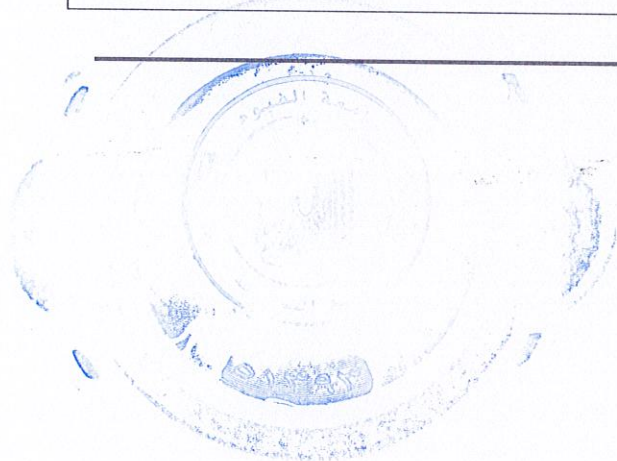
d2. Work effectively in a team during applications of instrumental analysis of different pharmaceutical preparations.

General Pharmacy Program

3- Course contents:

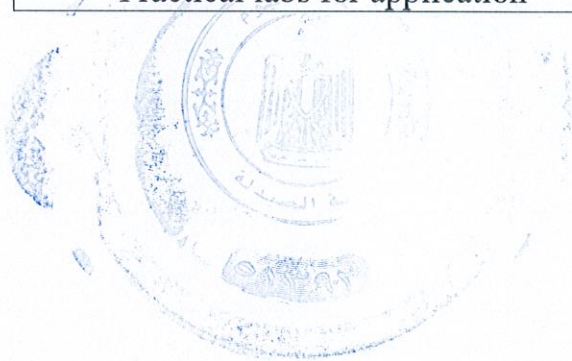
Topic	No. of hours		
	Lecture	Practical	Total
Basic concepts of computer and information technology	1	1	2
Algorisms and flowcharting fundamentals	1	1	2
Introduction to computer programming	1	1	2
Selection statements in computer	1	1	2
For statement in computer	1	1	2

While statements in computer	1	1	2
Do-While statement in computer	1	1	2
Computer networks introduction	1	1	2
Inherent IoT	1	1	2
Applications of IoT in Pharmaceutical Manufacturing	1	1	2
Application of Blockchain towards Pharmaceutical Industry	1	1	2
Some computer applications (self-learning)	1	1	2
Total	12	12	24



4- Teaching and Learning Methods (lectures, open discussion, role plays,...etc):

- Lectures, using Power point presentation
- Open discussion
- Practical labs for application

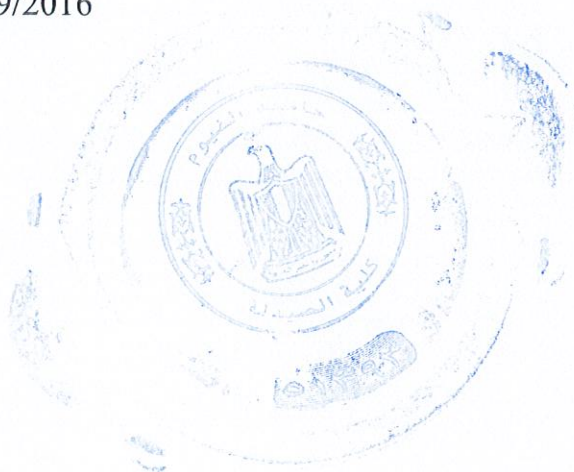


a- Assessment Methods and Weighing	
-	Class participation: 20%
-	Practical Exam: 30%
-	Final Exam: 50%
b- Assessment Schedule:	
-	Class participation: Quiz 1: Week 4-5 Quiz 2: Week 8-9 Other activities: throughout the semester
-	Practical Exam: Week 13-14
-	Final Exam: According to semester timetable

Course Coordinator: Dr. Doaa Helal

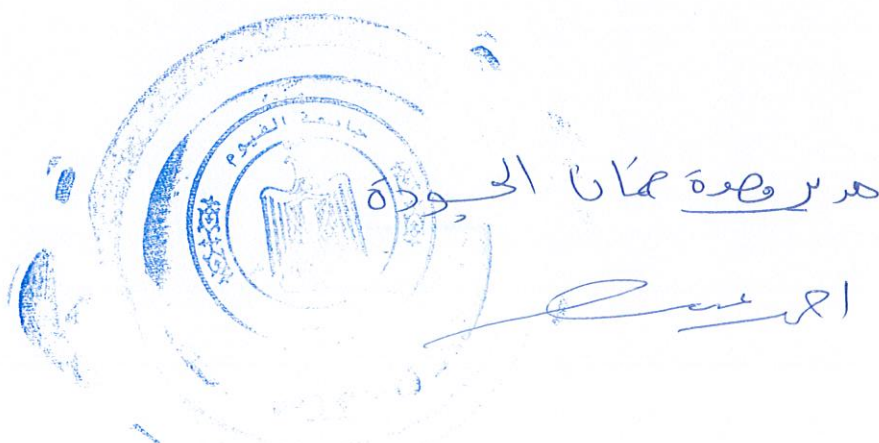
Head of Department: Prof. Dr. Mona Hetta

Date: 17/9/2016



Course specification

Course code:	1502
Course name:	Pharmaceutical Organic Chemistry II
Credit hours of the course:	Lecture: 2 Practical: 1 Total: 3
Pre-requisite of the course:	Pharmaceutical Organic Chemistry I
Department teaching the course:	Pharmaceutical Medicinal Chemistry Department
Program for which the course is given:	Clinical Pharmacy Program
Course Co-ordinator:	Dr Mohammed Ibrahim Abdel_Latif Hamed. Dr/ Mohammed Mahmoud El_Agawany
Head of the Department:	Prof. Dr./ Mona Hetta
Date of specifications approval	09/2015



b-professional information

1-Overall aims of the course:

The aim of this course to ensure that graduates have the necessary knowledge, understanding and skills to apply the basic chemistry of aliphatic organic compounds.

2-Intended learning outcomes (ILO's):

Knowledge and Understanding:

By the end of this course, the student should be able to:

a1-Know the basic concepts of aromaticity and chemistry of arenes

a2-Know the characteristics of chemistry of benzenoids and polynuclear compounds

a3-Understand The basics of spectroscopy and spectral analysis of organic compounds

Intellectual Skills:

By the end of this course, the student should be able to:

b1- Recognize organic compounds from their physical and chemical properties.

b2- Discuss organic problems of different organic classes.

b3- Apply suitable methods for synthesis, purification, and identification of chemical substances from different origins.

64- Analyze and interpret experimental studies as well as data from published literature using spectroscopy.

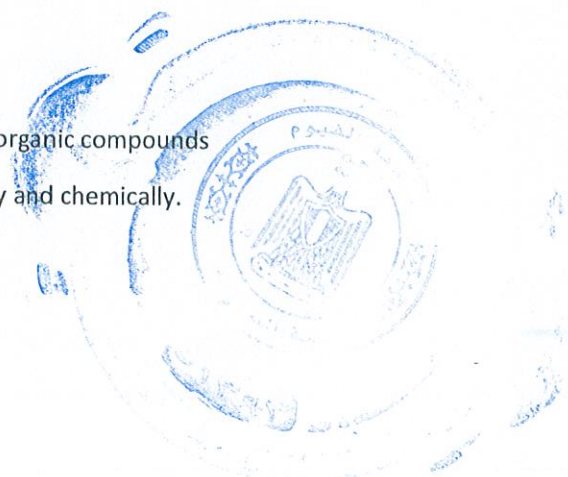
c- Professional and Practical Skills:

By the end of this course, the student should be able to:

c1-Select the appropriate methods for identification and synthesis of organic compounds

c2- Identify aromatic organic compounds and carbohydrates physically and chemically.

c3- Analyze spectral data of organic compounds.



d-General Skills:

By the end of this course, the student should be able to:

d1- Use the literature via different information sources including the library, internetetc.

d2- Care about himself, his colleagues and all the tools and instruments of his lab during dealing with chemical organic compounds

3-course contents

Topics	lecturer	lecture	practical	total
Introduction to organic chemistry, structure of benzene and its stability, (resonance), and the aromaticity phenomena. Classification and Nomenclature of aromatic compounds. Preparation and addition reactions of benzene	Dr/Mohammed Ibrahim	2	1	1
Electrophilic substitution reactions of benzene. Orientation (o-p-m-directing group) of substituted benzene.	Dr/Mohammed Ibrahim	2	1	1
Arenes and their derivatives. Aryl halides.	Dr/Mohammed Ibrahim	2	1	1
Aromatic alcohols Aryl ether.	Dr/Mohammed Ibrahim	2	1	1
Nomenclature, Synthesis, preparation and chemical reactions of aromatic aldehyde and ketone.	Dr/Mohammed Ibrahim	2	1	1
Aromatic carboxylic acids and their derivatives.	Dr/Mohammed Ibrahim	2	1	1
Identification, Synthesis, preparation and chemical reactions of aromatic amine and nitro compounds.	Dr/Mohammed El Agawany	2	1	1
Aromatic diazonium compounds. Polynuclear aromatic hydrocarbons (Naphthalene. Anthracene, phenanthrene, and anthraquinone)	Dr/Mohammed El Agawany	2	1	1
Introduction to spectroscopy, relation between light and organic compounds, Ultraviolet-and visible U.V. Beer Lambert law, type of electronic orientations Calculate of λ_{max} for dienes by using Woodward (Fisher rule)	Dr/Mohammed El Agawany	2	1	1

Introduction to mass spectro fragmentation and Mc-Lafferty rearrangement	Dr/Mohammed El Agawany2	2	1	1
Introduction infrared, Hook low, region of different type of function groups.	Dr/Mohammed El Agawany	2	1	1
Introduction to NMR, type uses in life. H-NMR. Chemical Shift and TMS. Chemical shift of different type of protons. ¹³ C-NMR (chemical shift. Problems on C-NMR)	Dr/Mohammed El Agawany	2	1	1
total		24	12	36

4-Teaching and Learning Methods (lectures, open discussion, role plays, etc):

4.1- Lectures (board, overhead projector, molecular models, software chemistry programs and data show)

4.2- Tutorials and discussion sessions

4.3- Practical sessions

5- Student Assessment:

a-Assessment Methods and Weighing:

Quiz to assess the knowledge, understanding and intellectual skills of the course.

Mid-Term written exam to assess the knowledge, understanding and intellectual skills of the previously studied sections of the course.

Practical exam to assess the practical and professional skills gained by the students.

Final written exam to assess all the knowledge and understanding of the different sections of the course.

Oral examination to assess all the intellectual skills and knowledge of the different sections of the course.

1) Class participation: 20%

2) Practical exam:30%

3) Oral exam: 20%

4) Final exam: 80%.

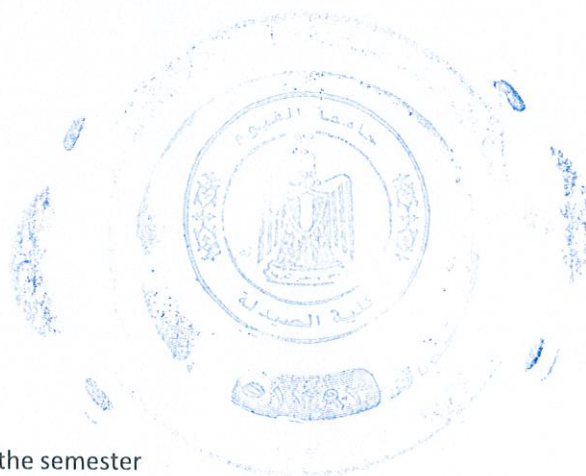
b-Assessment Schedule:

Class participation Quiz 1: Week 4-5

Quiz 2: Week 8-9

Other activities: throughout the semester

Practical exam: Week 13-14



Oral exam: According to semester timetable

Final exam: According to semester timetable

6-list of references

Course Notes	On ELS
Required Books	Essential organic chemistry. Paula Yurkanis Bruice
Recommended Books	a. Fundamental of Organic Chemistry, J. McMurry and E. Simanek. 6th Edition Organic Chemistry: R.T. Morrison and R.N. Boyd: 6 Edition Chemistry for Pharmacy Students. Satyajit D. Sarker and LutfunNahar. 2007) Mechanisms in Advanced Organic Chemistry. R.P. Narain; (2008) b. Stereochemistry: V. M. POTAPOV, (1979) c. Organic Stereochemistry, Michael J. T. Robinson (1999) d. VOGEL's "Textbook of practical organic chemistry" Brian S. Fumiss, Antony J. Hannaford, Peter W. G. Smith and Austin R. Tatchell 5 Edition
Periodicals	Different pharmacopoeias (Egyptian & british)
Web Sites	Journal of Organic Chemistry http://www.pubmed.com

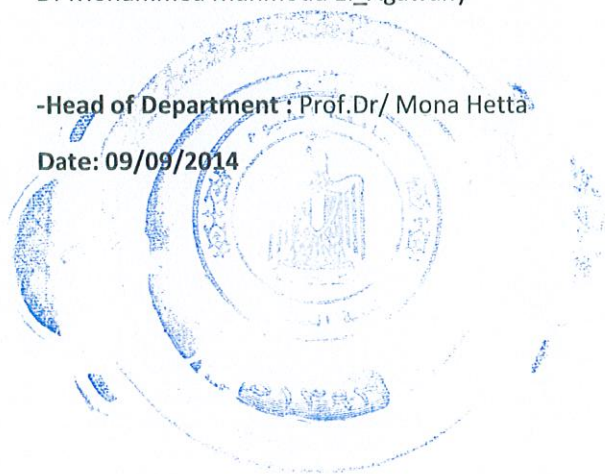
Course Coordinator:

Dr/Mohammed Ibrahim Abdel Latif Hamed.

Dr Mohammed Mahmoud El_Agawany

-Head of Department : Prof.Dr/ Mona Hetta

Date: 09/09/2014





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Faculty of Pharmacy

**General Pharmacy Program
(2015-2016)**

Course Specifications

A-Basic Information	
Course code:	1302
Course name:	Medical terminology
Credit hours of the course:	Lecture: 1 hr Practical:--- Total:1 hr
Pre-requisite of the course:	Registration
Department teaching the course:	Pharmacology & Toxicology
Program for which the course is given:	General Pharmacy
Course Co-ordinator:	Dr Mohamed Hamzawy
Head of the Department:	Professor. Mona Hetta
Date of specifications approval:	09/09/2015

B-Professional Information
1-Overall aims of the course:
The aim of this course is to enable the students to analyze a medical term into its component parts, root(s), prefix and suffix, that maintain the same meaning whenever they appear. By learning these meanings, the student will be able to recognize those term parts in totally new combinations and come to understand the meaning of even unfamiliar term to foster an attitude of advising the physician based on basic knowledge of therapeutics.
2-Intended learning outcomes (ILO's):



Fayoum University



Faculty of Pharmacy

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(2015-2016)**

a-Knowledge and Understanding:

By the end of this course, the student should be able to:

- a1- Display knowledge and understanding of the main principles of term analysis.
- a2- Describe the meanings of a given prefix, suffix and combining form.
- a3- State medical terms pertaining to normal and abnormal functions of human body systems.

b-Intellectual Skills:

By the end of this course, the student should be able to:

- b1- Work constructively and cooperatively within a team. (4-1-2-3)
- b2- Enhance auto-learning abilities.
- b3- Translate and express pharmaceutical and medical terms and abbreviations

c-Professional and Practical Skills:

By the end of this course, the student should be able to:

- c1- Improve usage of scientific terms and presentation.
- c2- Demonstrate parts of a medical term.

d-General Skills:

By the end of this course, the student should be able to:

- d1- Communicate using medical scientific terms
- d2-

3-Course contents:

Topic	No. of hours		
	Lecture	Practical	Total
Introduction, basic information of medical word; prefix, root, suffix.	1	-	1
Basic rules for building medical Terms	1	-	1
Medical terms related to Gastrointestinal system	1	-	1
Medical terms related to Respiratory system	1	-	1



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Medical terms related to Nervous system	1	-	1
Medical terms related to Musculoskeletal system	1	-	1
Medical terms related to Cardiovascular and Lymph system	1	-	1
Medical terms related to Reproductive system	1	-	1
Medical terms related to Urinary system	1	-	1
Medical terms related to Endocrine system	1	-	1
Total	10	-	10

4-Teaching and Learning Methods (lectures, open discussion, role plays, ..etc):

- 1-Lectures
- 2-Open discussion
- 3-Presentations

5- Student Assessment:

- a. Class work:
 - 1. Quizzes and assignment
- b. Final exam

Written theoretical

a-Assessment Methods and Weighing:

- a. Class work (10%) distributed as:
 - 1. Quizzes and assignment (10%)
 - b. Final exam (40%) distributed as:
 - 1. Written theoretical (40%)
- Total percentage 50%

b-Assessment Schedule:

- Class participation: Quiz 1: Week 4-5
Quiz 2: Week 8-9
Other activities: throughout the semester
- Final exam: According to semester timetable



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Faculty of Pharmacy

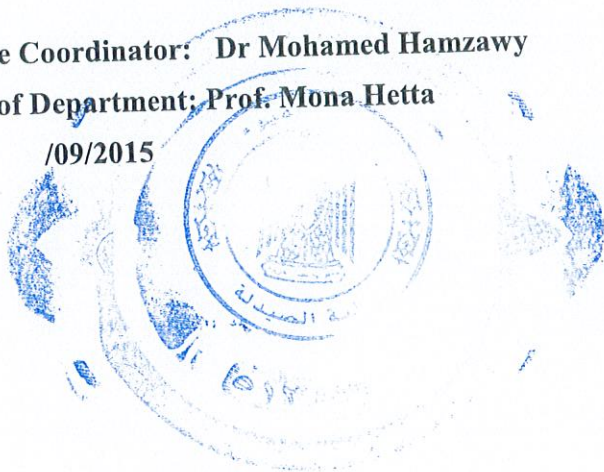
**General Pharmacy Program
(2015-2016)**

6-List of References:	
Course Notes	Uploaded on Faculty drive
Required Books	Medical Terminology Simplified by Barbra AGylys, Regina M. Masters; 4th edition
Recommended Books	Medical Terminology: a Living Language by Bonnie F. Fremgen, Suzanne S. Frucht An Introduction to Medical Terminology for Health Care by Andrew R. Mutton 3rd EDITION Medical terminology for health professions BY ANN EHRLICH and CAROL L. SCHROEDER 6th Edition
Periodicals & Web Sites	http://www.abebooks.com/Mosbys-Medical-Nursing-Allied-Health-Dictionary/812631228/bd

Course Coordinator: Dr Mohamed Hamzawy

Head of Department: Prof. Mona Hetta

Date: /09/2015



Course Specifications

**Physical pharmacy
(1102)**

**Level 1
Semester 2**

Course Specification

A-Basic Information	
Course code:	1102
Course name:	Physical pharmacy
Credit hours of the course:	Lecture: 2 Practical: 1 Total: 3
Pre-requisite of the course:	Registration
Department teaching the course:	Department of Pharmaceutics
Program for which the course is given:	General Pharmacy Program
Course Co-ordinator:	Dr.Eman Ahmed Mazyed
Head of the Department:	Prof Dr. Mona Hetta
Date of specifications approval:	09/09/2014

B-Professional Information
1- Overall aims of the course:
At the end of this course the student must be able to understand: Important pharmacy-related physical principles in areas such as states of matter ,phase equilibrium and phase rule , solutions and disperse systems , adsorption ,solubility ,dissolution rate , buffers , isotonic solutions and rheology .
2-Intended learning outcomes (ILOs):
a-Knowledge and Understanding : By the end of this course , the student should be able :

2

مراجعة
د. منى هتة

09/09/2014

:
A1. Define basic principles and different terms of physical pharmacy..

A2. Understand physical principles of states of matter and phase rule

A3. Recognize basic understanding of physical properties of solutions, buffers.

Isotonicity, disperse systems and Rheology..

a4.. Understand physicochemical properties of drugs including solubility, distribution and adsorption.

b-Intellectual Skills:

By the end of this course, the student should be able to

b1 Apply information regarding physical principles in designing dosage forms.

b2 Solve problems related to states of matter, concentration expression, buffers and isotonic solutions

b3 Recognize basic rules and equations regarding physical principles essential for pharmaceutical applications

.Differentiate between different types of solutions, buffers and surfactants.b4.

.B5.Compare between different types of flow and rheograms

B6.Select suitable calculations necessary for pharmaceutical experimental procedures..

c-Professional and Practical Skills:

By the end of this course, the student should be able to

cl. Use suitable method for calculating solubility, viscosity and surface tension.

C2.Operate different pharmaceutical laboratory instruments used in determining various physical properties such as surface tension, viscosity, adsorption and solubility..

d-General Skills:

By the end of this course, the student should be able to::

d1. Use computer and modern technologies.

d2. Gain the skills of self- learning and presentation..

d3 Work effectively in a team to measure and understand various physical properties of drug solutions.

d4. Calculate and properly express solution concentrations..

D5.Demonstrate critical thinking, problem solving and decision making abilities in a variety of theoretical and practical situations in pharmacy practice.

d6.Prepare and discuss scientific reports.

General Pharmacy Program

Buffers and buffering agents , isotonic solutions and determination of tonicity	Buffer and buffer capacity.	2+1	2	1
Disperse systems and colloids	Revision	2+1	2	1
Revision	Revision	2+1	2	1
Total		39	26	13

4- Teaching and Learning Methods (lectures, open discussion, role plays,...etc):

- Lectures, PowerPoint presentation
- Tutorial classes
- Open discussion
- Research assignment and interactive discussions.

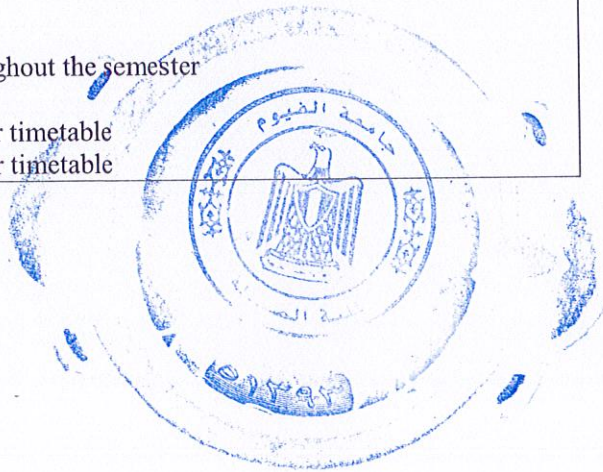
5- Student Assessment:

a- Assessment Methods and Weighing:

- Class participation: 20%
- Practical Exam: 50%
- Final Exam: 80%

b- Assessment Schedule:

- Class participation: Quiz 1: Week 4
Quiz 2: Week 8
Other activities: throughout the semester
- Practical Exam: - Week 13
- Oral Exam: According to semester timetable
- Final Exam: According to semester timetable



6- List of References:	
Course Notes	Course notes, Hand outs
Required Books	Physical Pharmacy, David Attwood and Alexander T. Florence (editors), Pharmaceutical Press, London, UK, 2008
Recommended Books	Agarwal, S.P., and R. Khanna. Physical Pharmacy 1st ed. CBS Publishers and Distributors, 2002. -Alton, Michael E. Pharmaceutics: The Science of Dosage Form Design. 2 nd ed Churchill, 2002‘ -Cherng-Ju Kim, Advanced pharmaceutics "Physicochemical Principles" CRC press, 2000. -University of the Sciences in Philadelphia, ed. Remington. The Science and Practice of Pharmacy. 21 st ed. Lippincott, 2005. -Alfred N. Martin Physical Pharmacy 4th ed. Lea & Fibiger, 1996.
Periodicals Websites	J. Parma Pharmacology, Ind. Pharm, Pharmazie, Drug Devel. Ind. Pharm, E-book, http://www.nordicrheologysociety.org http://www.rpi.edu/dept/chem-eng/Biotech http://www.adisorb.com

Course Coordinator: Dr. Eman Ahmed Mazyed

Head of Department: Prof. Mona Hetta

Date: /09/2014



Course Specifications
(2015 –2016)

Pharmaceutical Analytical Chemistry II

1603





Course Specifications
(2015 –2016)

Pharmaceutical Analytical Chemistry

A. Basic Information

Program(s) on which the course is given	Bachelor of pharmacy
Department offering the course	Pharmaceutical Analytical Chemistry department
Faculty offering the program	Faculty of pharmacy, Fayoum University
Dept. responsible for teaching the course	Pharmaceutical Analytical Chemistry department
Academic year / level	First level, second semester
Course title	Pharmaceutical Analytical Chemistry II
Course code	1603
Contact hours (credit hours)	Lecture 2 (2) + Practical 2 (1): Total 4 (3)
Pre-requisite of the course:	Pharmaceutical Analytical Chemistry I
Course coordinator	Dr/ Ragab Ahmed
Major or Minor element of program	Major
Date of specification approval	09/09/2015

B. Professional Information

1. Overall Aims of Course

- 1) The aim of the course is to provide students with an introduction to statistical analysis
- 2) Study oxidation-reduction titrations, (electrical properties of redox systems, factors affecting oxidation potential, redox titration curves).
- 3) Study complexometry (importance complex ones stability titration curves, application, direct EDTA titrations, masking and de-masking, non EDTA titrations).

2. Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

By the end of the course, the students should be able to:

- a₁- Illustrate the basic principles of volumetric analysis
- a₂- Acquire much information about different quantitative analytical methods.
- a₃- Recognize the suitable analytical methods for identification of different



Course Specifications (2015 –2016)

pharmaceuticals

- a4- Understand the basics of oxidation-reduction titrations.
- a5- Understand complexometry (importance complex ones stability titration curves, application, direct EDTA titrations)

b- Intellectual Skills

By the end of this course, the student should be able to:

- b₁- . Select appropriate analytical methods required for conformity of specifications of raw material.
- b₂- Assess different methods for quantitative chemical analysis of different substance.
- b₃ - Write a report on analysis of a chemical substance.
- b₄- Demonstrate the principles and limitations of practical techniques.

c- Professional and Practical Skills

By the end of the course, the student should be able to:

- c₁. Apply the safe handling and safe disposal of chemicals according to the ethical and legal guidelines.
- c₂. Apply the practical methods required for quantification of different compounds.
- c₃- Standardize chemical reagents used in REDOX quantitative analysis.
- c₄- Analyze different pharmaceutical substances through REDOX & complexometric analysis.

d- General and Transferable Skills

By the end of the course, the student should be able to:

- d₁. Interact and communicate by verbal and written means with other health care professionals in their own specialized language.
- d₂. Team-working in diverse pharmaceutical & social settings.
- d₃. Keep up with the pharmacy profession and pharmaceutical industry as a life -long independent continuing education post-graduation
- d₄. Apply proper safety measures according to standard guidelines



Course Specifications (2015 –2016)

d₅- work efficiently in laboratory.

d₆. Analyze, evaluate information and solve problems

3. Contents

Teaching week	TOPIC	No. of lecture hours	No. of practical hours	Assessment of ILOs
1	Introduction to REDOX	2		a2, b1, d1
	Lab safety		2	
2	Quantitative analysis methods	2		a1, a2,a3,b1,b2, c1, c2, d2
	Standerdization		2	
3	Oxidation number	2		a1, a2,a4,b1,b2, c1, c2, d2
	Assay of oxalate		2	
4	Standards used in REDOX	2		a1, a5,a3,b1,b3, c1, c3, d1,d2
	Assay of ferrous		2	
5	Application-1 of REDOX	2		a1, a2,a4,b1,b2, c1, c3, d2, d3
	Assay of hydrogen peroxide		2	
6	Application-2 of REDOX- Quiz 1	2		a1, a2,a3,b1,b3, c1, c2, d1,d5
	Assay of nitrite		2	
7	Introduction to electro	2		a1, a2,a4,b1,b2, c1, c3, d2, d6
	Electro problems I		2	
8	Indicator Electrodes	2		a1, a2,a3,b2, c1, c2, d1
	Electro problems II		2	
9	Reference Electrodes	2		a2,a3,b1, c1, c2, d1,d6
	Electro problems III		2	
10	Application-1 of electro Quiz 2	2		a1, a4,a4, a5, b1,b2, c1, c3, c4, d2
	Revision		2	
11	Application-2 of electro	2		a2,a4, a5, b1, c1, c2, c4, d1, d5, d6
	Final practical exam			
Total no of hours		22	20	
11 & 12	FINAL Exam			



Course Specifications **(2015 –2016)**

4. Teaching and Learning Methods

4.1- Lectures (board, data show, power point)	√
4.2- Interactive learning (Discussions, brain storming)	√
4.3- Self-study (Tutorials)	-
4.4- Practical (labs, tools, chemicals, glassware, equipment and instruments)	√
4.5- Other methods (Assignments)	√

5. Student Assessment Methods

5.1. Written exams to assess knowledge and understanding as well as intellectual skills.

5.2. Oral exams to assess all types of skills and mainly general and transferrable skills practice.

5.3. Practical exams

Assessment Schedule

Quiz 1	5 th week
Quiz 2	9 th week
Practical exam	11 th week
Final exam	12 th week
Oral exam	12 th week

Weighting of Assessments

Periodical	30%
Practical	30%
Final exam	80%
Oral exam	20%
Total	150%

6. List of References

6.1- Course Notes

Compiled by the department



Course Specifications **(2015 –2016)**

6.2- Essential Books (Textbooks)

- J. Mendham, R.C. Denney, J.D. Barnes and M.J.K. Thomas "Vogel's Textbook of quantitative chemical analysis" by Pearson education (6th edition) 2004
- R.de Levie "principles of quantitative chemical analysis" by Mc Graw-Hill Companies, inc. 1997.
- G. D. Christin "Analytical chemistry" by John Wiley & sons inc. (5th edition) 1994

6.3- Periodicals

- Analytical letters
- J. pharmaceutical and biomedical analysis
- Analytical chemistry

6.4- Web Sites

<https://pubs.acs.org/journal/ancham>

<https://www.degruyter.com/view/journals/revac/revac-overview.xml>

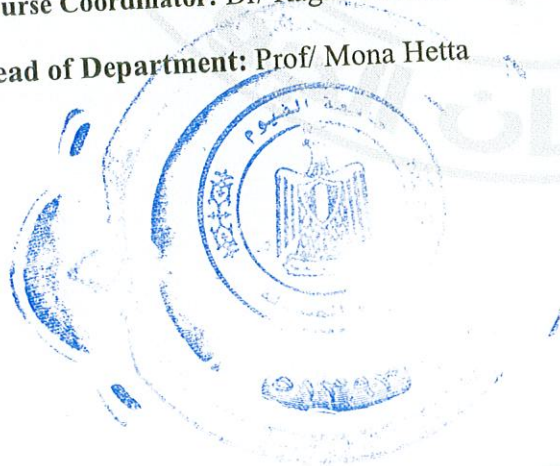
7. Facilities required for teaching and learning

1. Lecture rooms with data show
2. Procurement of latest edition of the above-mentioned texts and others to update the education process

Course Coordinator: Dr/ Ragab Ahmed

Head of Department: Prof/ Mona Hetta

Date: 09 /09/2015





Course Specification of Pharmacognosy1

University: Fayoum

Faculty: Pharmacy

A- Course specifications:

Program (s) on which the course is given: Bachelor of pharmacy (General)

Department offering the course: Pharmacognosy

Academic year Level: First level /second term

Date of specification approval: 09/ 2015

B- Basic information:

Title: Pharmacognosy I **code:** 1202

Credit hours: 3 (2+1)

Lectures: 2 hrs/ week

Practical: 1 hrs/ week

Tutorials: ---

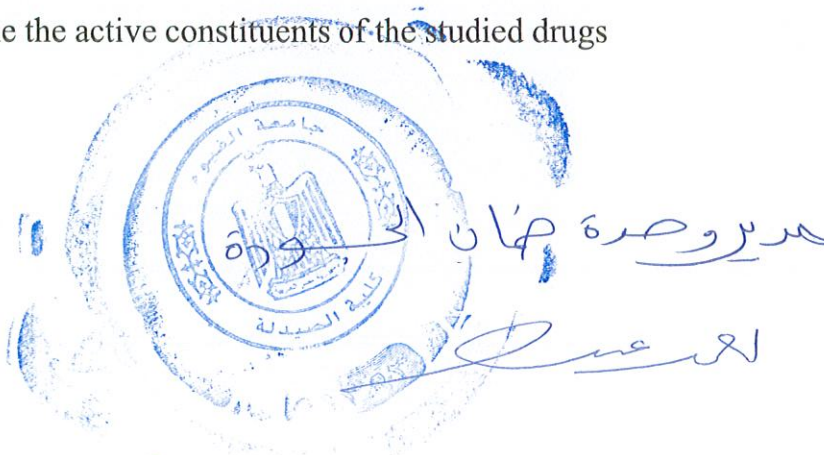
Total: 3 hrs/ week

C- Professional information:

1-Overall Aims of the Course:

On completion of the course, the student will be able to:

- Describe morphological, histological characters and uses of medicinal flowers, barks, wood and herbs as well as identification of different active constituents and adulteration.
- Examine and determine the active constituents of the studied drugs





2-Intended Learning Outcomes (ILOs):

A- Knowledge and Understanding	
a1	Illustrate morphological , Histological characters and uses of medicinal flowers, barks, wood and herbs
a2	Identify adulteration of different medicinal flowers, barks, wood and herbs.
a3	Identify different active constituents of medicinal flowers, barks, wood and herbs.
B- Professional and Practical skills	
b1	Handle and dispose chemicals in a safe way
b2	Handle lab microscopes effectively
b3	Examine drugs of plant origin in entire and powdered form.
C- Intellectual skills	
c1	Adapt GLP and safety guidelines in the lab.
c2	Differentiate between drugs in entire and powdered form
c3	Differentiate the active constituents of different drugs.
D- General and Transferable skills	
d1	Work as a member of a team
d2	Implement writing and presentation skills
d3	Develop critical thinking, decision making and time management skills

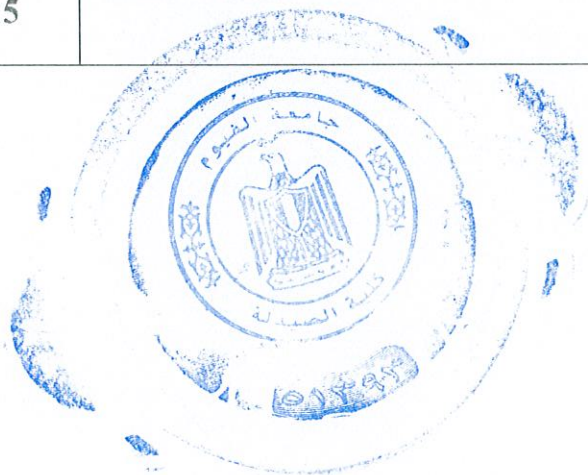


D- Contents:

Week No.	Lecture contents (2hrs/lecture)	Practical session (1hrs/lab)
1	- General introduction for what will be taught all over the term - Introduction for the flowers and giving the students the possible references, web sites, text books.	- Laboratory safety measures - Dealing with microscope.
2	- Rest of introduction of flower. - Description of clove flower Including macro- and micro-morphological study for entire drug and for powdered clove.	- Description of clove flower Including macro- and micro-morphological study for entire drug. - Histology of powdered clove.
3	Chamomile (German and Roman) and calendula flowers macro-and, micro-morphology of the entire and powdered drugs, chemical identification.	German chamomile flower macro-, and micro-morphology, powders and chemical identification.
4	Rest of flower drugs, uses, active constituents, pharmaceutical preparations.	- Santonica flowers macro-and, micro-morphology, powder and chemical identification. Activity (Net research on the pharmaceutical products derived from the flowers).
5	General introduction of bark	Cinnamon bark macro-and micro-morphology, powder and chemical identification.
6	Rest of the introduction and cinnamon bark: macro-and; micro-morphology-, powder and chemical identification.	Cassia barks (Morphology, histology, powder and chemical test, when it is possible.
7	- Cinchona in details: macro-and; micro-morphology, powder and chemical identification. Periodic exam.	- Cinchona barks (Morphology, histology for entire drug powder and chemical test when it is possible. - Morphological demonstration for all barks.



8	Cascarilla, quillaia, and canella bark (Morphology, histology, powder and chemical test when it is possible).	Revision for powdered barks (Cinnamon, Cassia and cinchona).
9	Cascara and frangula in details: macro-morphology; micro-morphology powder and chemical identification.	- Quassia wood: Macro- and micro-morphology of entire wood. - Galls: Macro-morphology and micro-morphology of entire drug.
10	Rest of the taught barks.	Hyoscymus muticus herb: Macro- and micro-morphology of entire drug
11	- Introduction to wood - Galls: Macro-morphology of entire wood; micro-morphology-, Powder; chemical identification.	Mentha: Macro- and micro-morphology of Powder and chemical identification
12	Herbs introduction	Practical exam 1
13	Official and nonofficial herbs	Practical exam 2
14	Revision.	-----
15	Final written exam.	-----



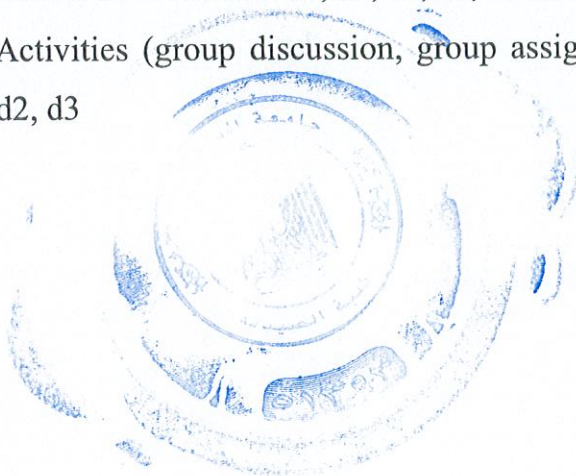


E- Teaching and Learning Methods:

- Lectures and interactive lectures.
- Practical sessions
- Self learning (group discussion, group assignment)

F- Student Assessment methods:

- Periodic exam to assess: a1, a2, a3, c1, c2 and c3
- Written exams to assess: a1, a2, a3, c1, c2 and c3
- Practical exams to assess: b1, b2, b3 and d1
- Oral exam to assess: a1, a2, a3, c1, c2 and c3
- Activities (group discussion, group assignment, case study) to assess: d1, d2, d3





Assessment schedule

Assessment (1): activity	Week 4
Assessment (2): Periodic exam	Week 7
Assessment (3): Practical exam	Week 12, 13
Assessment (4): Final written exam	Week 15
Assessment (5): Oral exams	Week 15

Weighting of Assessment

Assessment method	Marks	Percentage
Periodic exam	20	20%
Practical exam	30	30%
Final written exam	80	80%
Oral exam	20	20%
TOTAL	150	150%

G- Facilities required for teaching and learning:

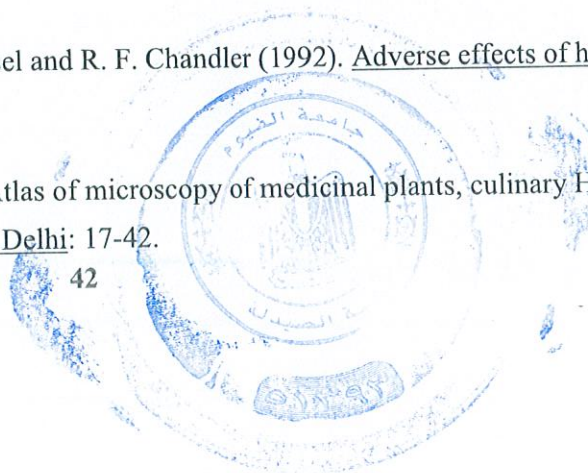
- **For lectures:** Black (white) boards and data show.
- **For Labs:** Chemicals, glassware and microscopes.

H- List of References:

1- Course Notes: Student book of Pharmacognosy I approved by Pharmacognosy Department (2019).

2- Essential Books:

- Wallis, T. (1967). "Text Book of Pharmacognosy 5th Edition, London." J and A. Churchill Ltd: 81-82.
- De Smet, P. A., K. Keller, R. Hänsel and R. F. Chandler (1992). Adverse effects of herbal drugs, Springer.
- Betty, P. and W. Derek (2000). "Atlas of microscopy of medicinal plants, culinary Herbs and species." CBS publisher New Delhi: 17-42.





- Evans, W. (2005). Trease and Evans Pharmacognosy, ed: 15th, Elsevier, a reed Elsevier India pvt ltd.
- Jackson, M. and A. Lowey (2010). Handbook of extemporaneous preparation: a guide to pharmaceutical compounding, Pharmaceutical Press London, UK.
- Upton, R., A. Graff, G. Jolliffe, R. Länger and E. Williamson (2016). American herbal pharmacopoeia: botanical pharmacognosy-microscopic characterization of botanical medicines, CRC Press.
- McCreath, S. B. and R. Delgoda (2017). Pharmacognosy: Fundamentals, applications and strategies, Academic Press.

3- Recommended Books

- Martindale (2007), "The extra pharmacopeia". 31st edn., by James, E.F Reynolds. And Kathleen Parfitt, Royal Pharmaceutical Society, London.

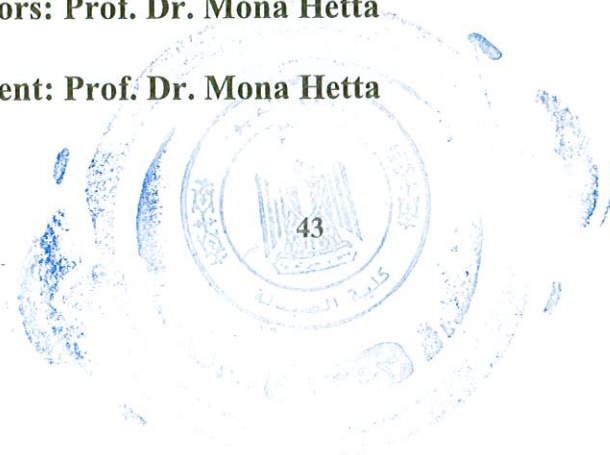
4- Periodicals and websites:

- Aquilina A. (2013), The extemporaneous compounding of paediatric medicines at Mater Dei Hospital. Journal of the Malta College of Pharmacy Practice. Issue 19, 28 – 30.
- <http://canadianpharmacistsletter.therapeuticresearch.com/ce/ceCourse.asp>
- <https://www.google.com/search?safe=active&sxsrf=ACYBGNT1wfCQl6DGxZ5ouZY1lQZZfJSrYg:1568843605556&q=Pharmacognosy4all&tbn=isch&source=univ&sa=X&ved=2ahUKEwiel8TurdvkAhVlrxoKHcTHDMAQ7A16BAgBECQ&biw=1008&bih=584#imgsrc=7NmuWomEPI70WM:>

Course Coordinators: Prof. Dr. Mona Hetta

Head of Department: Prof. Dr. Mona Hetta

Date:

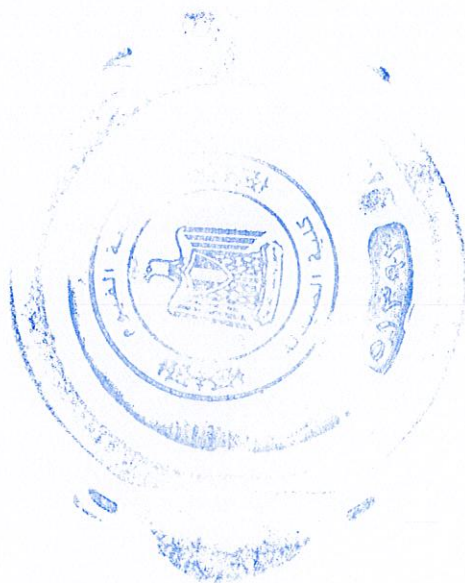


Matrix 1 of Pharmacognosy I													
Course Contents		ILOs of Pharmacognosy I											
		knowledge and understanding			professional and practical skills			intellectual skills			Transferable and general skills		
		a1	a2	a3	b1	b2	b3	c1	c2	c3	d1	d2	d3
Lectures													
1	• General introduction for what will be taught all over the term • Introduction for the flowers and giving the students the possible references, web sites, text books.	x	x	x				x	x	x			
2	• Rest of introduction of flower. • Description of clove flower • Including Macro- and micro-morphological study for entire drug and for powdered clove.	x	x	x				x	x	x			
3	• Chamomile (German and Roman) and calendula flowers macro-and, Micro-morphology of the entire and powdered drugs, chemical identification.	x	x	x				x	x	x			
4	• Rest of flower drugs-, uses-, active constituents, pharmaceutical preparations.	x	x	x						x			

5	● General introduction of bark.	x	x	x					x			
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	drug.																				
22	• Hyoscyamus muticus herb: Macro- and micro-morphology of entire drug						X	X	X									X			
23	• Mentha: Macro- and micro- morphology of Powder and chemical identification						X	X	X									X			
24	• Activity (Net research on the pharmaceutical products derived from the flowers).																	X			



Matrix II of Pharmacognosy I

National Academic Reference Standards NARS	Program ILOs	Course ILOs	Course contents	Sources	Teaching and learning methods				Weighting of assessment			
					lecture	practical session	self learning	written exam	practical exam	oral exam	Period- ical exam	
2.1 Principles of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice.	A2	- a1	General introduction for what will be taught all over the term.	Book note								
		- a2	Introduction for the flowers and giving the students the possible references, web sites, text books.									
		- a3	Rest of introduction of flower.									
			Description of clove flower Including Macro- and micro- morphological study for entire drug and for powdered clove.		x			x		x	x	



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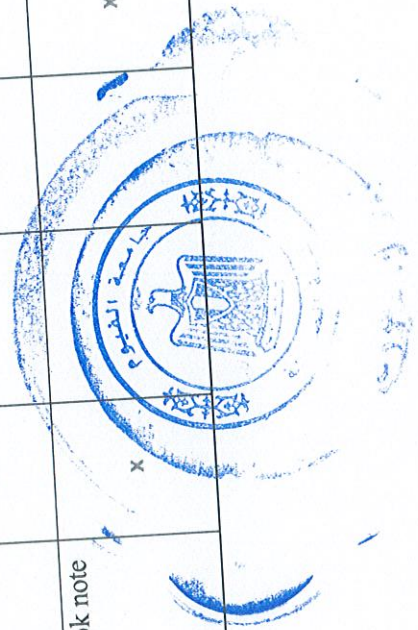
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University
Faculty of Pharmacy
Quality Assurance Unit

Chamomile (German
and Roman) and
calendula flowers
macro-and, Micro-
morphology of the
entire and powdered



- 23 -



2.4	Principles of isolation, synthesis, purification, identification, and standardization methods of pharmaceutical compounds.	A8	Study the active constituents of medicinal flowers, barks, woods and herbs.	Book note	x			x		x			x
3.2	Handle and dispose chemicals and pharmaceutical preparations safely	B2	Safety measures lab	Practical note				x					
			Dealing with microscope	Practical note									
3.4	Extract, isolate, synthesize, purify, identify, and/or standardize active substances from different origins.	B4	Examine the entire and powdered forms of different medicinal flowers, barks, wood and herbs.	Practical note						x			
			identification of different secondary metabolites using chemical tests	Practical note						x			
4.2	Comprehend and apply GLP, GMP, GSP and GCP guidelines in pharmacy practice	C2	Safety measures lab.	Practical note						x			

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4.5	Select the appropriate methods of isolation,	C6	c2	Differentiate between drugs obtained from	book note	x			x		x	x
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