Quality Assurance Unit

Department of Pharmacognosy

QAU
وحدة ضمان الجودة
كلية الصيدلة ـ جامعة أسيوط
Course Specification

Assiut University
Faculty of Pharmacy

Course Specification
(New trends in natural products identification)

1-Basic Information

Title: New trends in natural products identification   Code: **DPG 041**
Level: Ph.D. students   Department: Pharmacognosy
Units: 2
Lecture: 1hrs/week (1 unit)   Tutorial: 2hrs/week (1 unit)   Total: 3 hrs

2- Aims of Course

Upon successful completion of this course, the Ph. D. students should have information about the recent and advanced methods for identification of active principles isolated from medicinal plants.

3- Intended Learning Outcomes of Course(ILOs)

a- Knowledge and Understanding:

The student after completion of the course should:

al- Acquire the scientific terms and principles of UV, IR, MS, CD and NMR techniques

b- Intellectual Skills:

The student should be able to:

b1- Analyze and evaluate the information gained from spectral analysis, integrate and apply them.

b3- Deduce the structure of different classes of compounds.

b4- Choose the proper method for analyzing the gained data.

b8- Interactively discuss the obtained spectral data to deduce the structures.

c- Professional and practical Skills:

At the end of this course, the student should have the ability to:

c4- Analyze the gained results and the available information effectively (digitally, statistically…etc).

c6- Use advanced technology tool in spectral analysis.

d- General and Transferable Skills:

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

d2- Communicate interactively with colleagues, bosses and coworkers.

d3- Use information technology skills including word processing, powerpoint presentation, in addition to online computer search

d4- Educate other colleague, assess himself in the field of spectroscopy.

d5- Manage her/his time.

d6- Use different sources to get information about new techniques about natural products identification.

4- Course Contents
Lectures

Topic	Total hrs	Lect. hrs	Tut. hrs
- UV spectroscopy (introduction and applications)	6	2	4
- IR spectroscopy (introduction and applications)	3	1	2
- Mass spectroscopy (introduction and applications)	6	2	4
- NMR: - ^{1}H-NMR (introduction and applications)	6	2	4
- ^{13}C-NMR (introduction and applications)	6	2	4
- Two Dimensional NMR: - ^{1}H-^{1}H COSY, HSQC, HMBC	3	1	2
- Inadequate, NOESY, ROESY	3	1	2
- Computer assessed structure and future prospect in multidimensional NMR	3	1	2
- Optical and Chirooptical techniques CD, LD, X-ray	3	1	2
- Strategies of determining structures and problems	8	-	8
Total	47	13	34

5- Teaching and Learning Methods

5.1- **Lectures**
5.2- **Tutorials**

6- Teaching and learning methods for disables

No disables

7- Student assessment

a- Student Assessment methods

  7.1- **Written** to assess the knowledge and understanding and intellectual skills to the studied topics of the courses

  7.2- **Tutorials** to assess the knowledge and understanding, intellectual, professional, general and transferable skills through discussion, elucidation of structures of unknown compounds.

b- Student Assessment Schedule

  - Written exam (As decided by vice dean of post graduate affairs)

c- Weighting of Assessments

  - Written exam. (80 marks= 80%)

  - Oral presentation of a subject related to the Ph.D project (20 marks=20%)

8- List of References

a- Essential Books (Text Books)

  1- Metin Balci, "Basic 1H- and 13C-NMR Spectroscopy" Elsevier, 2005

  2- Terence N. Mitchell · Burkhard Costisella, "NMR – From Spectra to Structures, An Experimental Approach", Springer-Verlag Berlin Heidelberg 2007.

  3- Bernhard Blümich, "Essential NMR" Springer-Verlag Berlin Heidelberg 2005.

  4- Hollas J. Michael "Modern Spectroscopy" John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, England 2004.

  5- Christian Schorn, "NMR spectroscopy: data acquisition" Wiley-VCH, Verlag GmbH, D 69469 Weinheim, Germany 2001.

  6- Isao Noda and Yukihiro Ozaki "Two-dimensional Correlation Spectroscopy – Applications in Vibrational and Optical Spectroscopy" John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, England 2004.

  7- Atta-ur- Rahman and Muhammad Choudhary, "Solving problems with NMR spectroscopy" Academic press Inc., A division of Harcourt Brace and company, California 1996.

b- Periodicals, Web Sites, …. etc

  1- http://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/ Spectrpy/spectro.htm#contnt

Course Coordinator: Prof. Dr:
Head of Department: Prof. Dr. Azza A. Khalifa

University	Assiut			Course Title	New trends in natural products identification
Faculty	Pharmacy			Course Code.	…………….
Department	Pharmacognosy				

Matrix of the Intended Learning Outcomes (ILOs) of the Course

Topic	Week	K. and U.	Int. S.	Prof./Pract. S.	G./Trans.S.
- UV spectroscopy (introduction and applications)	1,2	a1	b1, b3, b4, b8	c4, c6	d2, d3, d4, d5,d6
- IR spectroscopy (introduction and applications)	3	a1	b1, b3, b4, b8	c4, c6	d2, d3, d4, d5,d6
- Mass spectroscopy (introduction and applications)	4,5	a1	b1, b3, b4, b8	c4, c6	d2, d3, d4, d5,d6
- NMR: - ^{1}H-NMR (introduction and applications)	6,7	a1	b1, b3, b4, b8	c4, c6	d2, d3, d4, d5,d6
- ^{13}C-NMR (introduction and applications)	8,9	a1	b1, b3, b4, b8	c4, c6	d2, d3, d4, d5,d6
- Two Dimensional NMR: - ^{1}H-^{1}H COSY, HSQC, HMBC	10	a1	b1, b3, b4, b8	c4, c6	d2, d3, d4, d5,d6
- Inadequate, NOESY, ROESY	11	a1	b1, b3, b4, b8	c4, c6	d2, d3, d4, d5,d6
- Computer assessed structure and future prospect in multidimensional NMR	12	a1	b1, b3, b4, b8	c4, c6	d2, d3, d4, d5,d6
- Optical and Chirooptical techniques CD, LD, X-ray	13	a1	b1, b3, b4, b8	c4, c6	d2, d3, d4, d5,d6
- Strategies of determining structures and problems	14,15	-	b1, b3, b8	c4, c6	d2, d3, d4, d5,d6

K. and U. : Knowledge and Understanding; Int. S.: Intellectual Skills; Prof./Pract. S.: Professional and Practical Skills; G./Trans. S.: General and Transferable Skills

Course Coordinator:

Head of Department: **Prof. Dr. Azza A. Khalifa**

Course Specification

1-Basic Information

1.Course Title: **Composition, analysis and uses of drugs and foods (including quality assurance)**

2. Code: DPG 042

3.Department: **Pharmacognosy**

4- Level : Post graduate (PHD)

5-Unit: Lecture: 2 hours/week

2-Aim of the Course:

The course aims to give the student an introduction to the most important aspects of food and drug safety as well as their analysis. It gives an overview of the most important microbial, chemical and physical food and drugs safety, an introduction on quality assurance systems assuming the drugs and food safety. Isolation, identification and quantification of drugs in pharmaceuticals and body fluids

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

a- Improve the gained knowledge continuously concerning the chemistry of natural products.

b- Think in creative and innovative manner.

c- Prepare and publish scientific paper in specific journals.

d- Accept scientific criticism and effectively communicate with scientific community.

f- Innovate solutions for scientific problems concerning marine and wild plants.

g- Work in different conditions and perseverance.

h- Collaborate with other scientific research fields as microbiology for valuable research work.

i-Design and leadership project team, share others with advices.

3- Intended Learning Outcomes of Course(ILOs)
a- Knowledge and Understanding:
Having successfully completed the course, the graduate should have the following:

al- Fundamentals of theories, basics and the new trends in the chemistry of natural products field and the analysis of drugs and food

a3- Knowledge in isolation and identification of drugs from mixtures

a4- Knowledge related to laboratory and food safety.

a5- Basics and principals of quality in analysis and uses of drugs and foods.

b- Intellectual Skills:
Upon completion the course, the graduate should be able to:

b1- Analyze and evaluate the information gained in the analysis and identification and apply them for food and drugs.

b3- Deals effectively with research problems using the available information.

b4- Take correct decisions concerning food and drug analysis.

b5- Evaluate the strength, weakness, opportunities and threatens in the suggested projects.

b6- Write and publish scientific research papers in local and international journals and conferences.

b8- Do interactive discussion using the available information.

c- Professional and practical Skills:
At the end of the course, the graduate should be able to:

c1- Design and write research projects in the filed of drug and food safety and analysis.

c2- Acquire and apply different skills in the filed of analysis of food and drugs.

d- General and Transferable Skills:

d1- Contribute in the workshops, congresses and scientific conferences.

d2- Interactive communication with colleagues, bosses and coworkers.

d3- Use information technology to improve the scientific research and professional practice.

d4- Work in team, educate other and continuous learning.

Course Content:
-Determination of physical constants. Identification of functional groups. -Separation and identification of drugs from mixtures by chemical and chromatographic methods. -Application of the UV, IR, ^{1}H-NMR spectrometry to the identification of drugs. -Immunoassays.

4- Course Contents

Topic	No. of hrs	Lecture	Tutorial / Practical
Introduction Microbiological and hygenic aspects of food and drug safety	4	2	-
Determination of physical constants. Identification of functional groups.	2	1	-
Separation and identification of drugs from mixtures by chemical and chromatographic methods	4	2	-
Application of the UV, IR, ^{1}H-NMR spectrometry to the identification of drugs	8	4	-
Immunoassays	2	1	-
Food intoxicating bacteria	2	1	-
laboratory safety Chemical aspects of food safety	4	2	-
Quality assurance systems assuming food and drug safety	4	2	-
Total	30	15	-

5- Teaching and Learning Methods

5.1- **Lectures**
5.1.1- Computer, data show, white board, marker and OHP
5.2- **Library**
5.3.electonic library.

6- student Assessment

a- Student Assessment methods
6.1- Written to assess the knowledge and understanding skills

7- List of References

a- Essential Books

1- The Chemistry of Food and Nutrition, A. W. Duncan
2-Principles of food chemistry, John M. de., Springer 2002.
3-Food Composition Data: Production, Management and Use
H. Greenfield & DAT Southgate, 2nd Edition, FAO Rome, 2003

b-Recommended Books

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4-The Food composition study guide
U. Ruth Charron

c- Periodicals, Web Sites, …. etc
-Journal of agriculture and food chemistry
-Journal of food chemistry
-Journal of food science
-Phytochemistry, Fitoterapia and Planta Medica

Course Coordinator:

Head of Department: