Course specifications

Programme(s) on which the course is given: B.Sc. chemistry
Major or minor element of programmes: Major
Department offering the programme: chemistry
Department offering the course: chemistry
Academic year / Level: 3th level
Date of specification approval: 2013

A- Basic Information

Title: Heterocyclic Chemistry Code: CH 447
Credit Hours: 3 Lecture: 1.5
Tutorial: 1 Practical: 2 Total: 3
Teaching staff:prof Dr / Magdy Zahran

B- Professional Information

1 – Overall aims of course

-After completing the course the graduates should beable to;

- **Understood the different routes and mechanisms for building up all types of heterocyclic ring size (3,4,5 and 6 member ring size).**
- **Study the reactivity of each ring toward the electrophilic, nucleophilic, oxidation, reduction and other types of reactivity studies**
- **Distinguish the utility and the applicability of heterocyclic compounds in our life beside their natural occurrence as well as the importance of some of heterocyclic compounds via the microorganisms and microwave synthesis (Green Chemistry).**
- **Know the nomenclature of all the different calss and ring sizes according to the IUPAC system.**

2 – Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

a1- Understand the different routes and mechanisms for building up all types of heterocyclic ring size (3,4,5 and 6 member ring size).

a2- Study the reactivity of each ring toward the electrophilic, nucleophilic, oxidation, reduction and other types of reactivity studies

b-Intellectual skills

b1-Lerning the graduates the most recent routes for the synthesis of the heterocyclic compounds via the microorganisms and microwave synthesis (Green Chemistry)

b2- Suggest an appropriate mechanism of heterocyclic compound.

c-Professional and practical skills

c1- learning the graduates the nomenclature of all the different calss and ring sizes according to the IUPAC system beside teaching and learning how can every graduate use the internet to download the specific software for nomenclature (Chemdraw, Isisdraw, …..etc) and the different chemistry webs which help them to follow up the course (e.g. www.organicchemistry.org), also, to be capable to follow up the recent methods for the synthesis of the heterocyclic compounds.

d-General and transferable skills

d1-Improving the mode of thinking and self confidence to all the graduates and increasing the ability to face and solve any problem in the field of the course.

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Synthesis and reactions of three member heterocyclic containing one and two heteroatom			
Synthesis and reactions of four member heterocyclic containing one and two heteroatom.			

Synthesis and reaction of five member heterocyclic containing one, two and three heteroatom.			
Synthesis and reaction of five fused with benzene with one heteroatom.			
Synthesis and reactions of six member heterocyclic containing one, two, three and four heteroatom.			
Synthesis and reaction of six fused with benzene with one heteroatom			
The nomenclature of all the different ring sizes.			
The application and importance of the heterocyclic compounds			

4– Teaching and learning methods

4.1- Lectures

5- Graduate assessment methods

5.1- Every 2 weeks / short exam.

5.2 - Mid term to assess the Mid term performance

5.3 –Oral exam and open discussion every 4 weeks.

5.4 – Final term to assess the final term performance

Assessment schedule

Assessment 1 short exam week: every 2 weeks

Assessment 2 Midterm exam week : 7th weeks

Assessment 3 Final exam week : 14th weeks

Weighting of assessments

Mid-Term Examination (written + practical) 20 %

Final-term Examination (written + practical) 60 %

Oral Examination. 20 %

Semester Work (written + practical)

Other types of assessment

Total 100%

Any formative only assessments

6- List of references

6.1- Handbook of heterocyclic chemistry 2nd edition (pergamon) 2000

A.R. Katritzky

A.F.Pozharskii

6.2 – Chemistry of heterocyclic Compounds VEB Deutscher Verlag fuer

Grunddstoffindustrie- Leipzig

6.3 – Iternet : All the free of charge chemistry Web for example :-

www.chemweb.com

www.mdl.com

www.organicchemistry.org

6.4 - Beside teaching and learning how can every student use the internet to download the specific software for nomenclature (Chemdraw, Isisdraw, …..etc) and the different chemistry webs which help them to follow up the course (e.g. www.organicchemistry.org)

6.5Dapson in heterocyclic chemistry, part VIII: synthesis, molecular docking and anticancer activity of some novel sulfonylbiscompounds carrying biologically active 1,3-dihydropyridine, chromene and chromenopyridine moieties

Several new sulfonebiscompounds having a biologically active 1,2-dihydropyridine-2-one 3–19, acrylamide 20, chromene 21, 22 and chromenopyridine 23, 24 moieties were synthesized and evaluated as potential anti...

Mansour S Al-Said, Mostafa M Ghorab, Yassin M Nissan in *Chemistry Central Journal* *(2012)*

7- Facilities required for teaching and learning

internet : local connection or wireless connection in the lecture Hall Data show installed in the lecture Hall Laptop or PC in each lecture hall

Course coordinator: Prof. Dr. / Magdy Zahran

Dr. / Amany Mostafa

Head of Department: Prof. Dr. / Adel Nassar

Date: / / 2013