



## Course Specifications

<b>Course Title:</b>	<b>Stereochemistry</b>
<b>Course Code:</b>	<b>2043105-2</b>
<b>Program:</b>	<b>Bachelor in Chemistry</b>
<b>Department:</b>	<b>Department of Chemistry</b>
<b>College:</b>	<b>College of Sciences</b>
<b>Institution:</b>	<b>Taif University</b>

## Table of Contents

<b>A. Course Identification</b> .....	<b>3</b>
6. Mode of Instruction (mark all that apply) .....	3
<b>B. Course Objectives and Learning Outcomes</b> .....	<b>3</b>
1. Course Description .....	3
2. Course Main Objective.....	3
3. Course Learning Outcomes .....	3
<b>C. Course Content</b> .....	<b>4</b>
<b>D. Teaching and Assessment</b> .....	<b>4</b>
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods .....	4
2. Assessment Tasks for Students .....	5
<b>E. Student Academic Counseling and Support</b> .....	<b>5</b>
<b>F. Learning Resources and Facilities</b> .....	<b>5</b>
1. Learning Resources .....	5
2. Facilities Required.....	5
<b>G. Course Quality Evaluation</b> .....	<b>6</b>
<b>H. Specification Approval Data</b> .....	<b>6</b>

## A. Course Identification

<b>1. Credit hours:</b> 2 (Theoretical)
<b>2. Course type</b>
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> 8 <sup>th</sup> Level/ 3 <sup>rd</sup> Year
<b>4. Pre-requisites for this course (if any):</b> Organic Chemistry 2 (2042203-3)
<b>5. Co-requisites for this course (if any):</b> NA

## 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3 Theoretical hours/ Week	100 %
2	Blended	-	-
3	E-learning	-	-
4	Distance learning	-	-
5	Other	-	-

## 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	-
3	Tutorial	-
4	Others (specify)	-
	<b>Total</b>	<b>30</b>

## B. Course Objectives and Learning Outcomes

### 1. Course Description

The course describes the classifications of isomerism, conformational and configuration isomerism in addition of separation of racemic mixture and their biological activity.

### 2. Course Main Objective

The course concerns with the basic concepts, rules of stereochemistry and stereo chemical relationships between molecules, identifying stereo-chemical results of reactions.

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
<b>1</b>	<b>Knowledge and Understanding:</b>	
1.1	Define conformational and configurationally isomerism	K1
1.2	Recognize the differences enantiomers, diastereomers and racemic mixtures	K2
<b>2</b>	<b>Skills:</b>	
2.1	Drive the stereoisomers of any organic chemistry containing chiral centers	S1

CLOs		Aligned PLOs
2.2	Apply models, and draw the all conformation analysis	S2
<b>3</b>	<b>Values:</b>	
3.1	Illustrate the concept of personal responsibility for achieving duties by teamwork	V1

## C. Course Content

No	List of Topics	Contact Hours
1	Introduction of stereochemistry; classifications of Isomerism	3
2	Structural isomerism and stereochemistry isomerism; (Chain isomerism; Positional isomerism; Functional isomerism and Tautomer's)	6
3	Conformation analysis of ethane; Conformation of n-propane; Conformation analysis of n-butane; Conformation analysis of cyclohexane	3
4	Geometrical isomerism: (Cis, Trans form) and (E, Z form)	3
5	Optically isomerism: (stereogenic, asymmetric carbon)	3
6	Optically isomerism: (chiral carbon of one and more than carbon atoms)	3
7	Configuration(Enantiomers, diastereomers, meso compounds, epimers)	3
8	Separation of Racemic mixture	3
9	Biological activity of Racemic mixture	3
<b>Total</b>		<b>30</b>

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge and Understanding</b>		
1.1	Define conformational and configurationally isomerism.	Lecture	Written Exam
1.2	Recognize the differences enantiomers, diastereomers and racemic mixtures	Lecture	Written Exam
<b>2.0</b>	<b>Skills</b>		
2.1	Drive the stereoisomers of any organic chemistry containing chiral centers.	Discussion	Homework Assignments
2.2	Apply models, and draw the all conformation analysis	Discussion	Homework Assignments
<b>3.0</b>	<b>Values</b>		
3.1	Illustrate the concept of personal responsibility for achieving duties by teamwork.	Collaborative Learning	Individual presentations

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Homework Assignments (Electronic)	Throughout Semester	10%
2	Individual presentations	Throughout Semester	10%
3	Mid Term Exam	6	20%
4	Final exam	11/12	50%

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

### Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Commitment to the rules of the Academic Advising Department at the university in accordance with the academic guidance manual approved by the university and the attached forms, there are different arrangements made by teaching staff to support student consultations including;

- Office hours: 8 hours per a week for each academic member.
- Academic guidance: an academic member has a number of students to guide them throughout degree journey.

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	<ul style="list-style-type: none"><li>• Stereochemistry, David G. Morris (2001). Wiley-RSC Basic Concepts in Chemistry, Volumes 1-6 Set, Royal Society of Chemistry, Latest Edition. ISBN: 978-0-85404-602-7 <a href="https://tinyurl.com/27u3rz8d">https://tinyurl.com/27u3rz8d</a></li></ul>
<b>Essential References Materials</b>	<ul style="list-style-type: none"><li>• Simple molecules: Hybridization, conformation and configuration David G. Morris (2001). Wiley-RSC Basic Concepts in Chemistry, Volumes 1-6 Set, Royal Society of Chemistry, Latest Edition. ISBN: 978-0-85404-602-7 <a href="https://tinyurl.com/yexsdvdt">https://tinyurl.com/yexsdvdt</a></li></ul>
<b>Electronic Materials</b>	<ul style="list-style-type: none"><li>• Saudi Digital Library (SDL) <a href="https://apps.tu.edu.sa/sdl/default.aspx">https://apps.tu.edu.sa/sdl/default.aspx</a></li></ul>
<b>Other Learning Materials</b>	<ul style="list-style-type: none"><li>• Internet, organic chemistry websites.</li></ul>

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"><li>• Lecture hall with 100 seats.</li></ul>
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"><li>• Blackboard access.</li></ul>
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching and assessment	Students	Survey (indirect method)
Extent of achievement of course learning outcomes	Program leader	Reports (Direct method)
Quality of learning resources	Peer referees Students	Reports (Direct method) Survey (indirect method)

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

<b>Council / Committee</b>	<b>Department Council/ Quality assurance committee</b>
<b>Reference No.</b>	2-5-1444
<b>Date</b>	01/11/2022