

AHST 102 Physical chemistry (2025)

1. Basic Information

| | | | | |
|---|--|-----------|-----------------|-------|
| Course Title (according to the bylaw) | Physical chemistry | | | |
| Course Code (according to the bylaw) | AHST 102 | | | |
| Department/s participating in delivery of the course | Department of Basic Sciences | | | |
| Number of credit hours/points of the course (according to the bylaw) | Theoretical | Practical | Other (specify) | Total |
| | 1 | 4 | ----- | 3 |
| Course Type | اجباري | | | |
| Academic level at which the course is taught | الفرقة/المستوي الثاني | | | |
| Academic Program | Basic Sciences | | | |
| Institute | Institute of High Technology Institute of Applied Health Science | | | |
| Academy | Badr Higher Institutes of Science and Technology | | | |
| Name of Course Coordinator | Dr/ Shaimaa Faheem | | | |
| Course Specification Approval Date | .Click or tap to enter a date | | | |
| Course Specification Approval (Attach the decision/minutes of the department /committee/council) | | | | |

2. Course Overview (Brief summary of scientific content)

Upon completing this course, student should be able to:

- know Physical parameters and its relation with chemistry
- be able to recognize contents of atoms, molecules
- be able to distinguish between of types of measurements systems
- Recognize differences of physical and chemical changes
- Explain types of mixtures and their separation methods
- List the difference between heat and temperatures and their scales
- Know about redox reactions oxidation numbers
- Know about balancing of chemical reactions equations
- Know about electrochemical cells types
- Demonstrate the ways of concentration measurements
- distinguish between molarity ,molality and normality rules
- chemical reactions types and solubility factors that effect on reaction rates
- identify about surface chemistry
- learn about carbohydrates classification and function
- learn about lipids classification and function
- learn about fatty acids classification and function
- learn about types of glands function
- learn about hormones classification and function
- learn about Vitamin classification and function

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| Program Outcomes (NARS/ARS) (according to the matrix in the program specs) | | Course Learning Outcomes Upon completion of the course, the student will be able to: | |
|---|------|---|--|
| Code | Text | Code | Text |
| | | CLO1 | a.1 know Physical parameters and its relation with chemistry , be able to recognize contents of atoms, molecules |

| Program Outcomes (NARS/ARS) (according to the matrix in the program specs) | | Course Learning Outcomes Upon completion of the course, the student will be able to: | |
|---|------|---|---|
| Code | Text | Code | Text |
| | | | and be able to distinguish between of types of measurements systems |
| | | CLO2 | a.2 Recognize differences of physical and chemical changes , Explain types of mixtures and their separation methods ,Know about redox reactions oxidation numbers , Know about electrochemical cells types |
| | | CLO3 | chemical reactions types and solubility factors that effect on reaction rates |
| | | CLO4 | a.4 identify about surface chemistry and learn about carbohydrates classification and function |
| | | CLO5 | a.5 learn about lipids , fatty acids classification and function ,types of glands function ,hormones classification and function |
| | | CLO6 | a.6 learn about Vitamin classification and function |
| | | CLO13 | d.1 Effectively communicate both orally and in writing by using suitable scientific terminology. |
| | | CLO14 | d.2 Demonstrates the ability to work in laboratory teams with other health care professionals to reach & deliver the best management plan to the patients and to have the necessary leadership skills. |
| | | CLO15 | d.3 High efficiency in problem-solving procedures. |
| | | CLO16 | d.4 Attention to detail. |

| Program Outcomes (NARS/ARS) (according to the matrix in the program specs) | | Course Learning Outcomes Upon completion of the course, the student will be able to: | |
|--|------|--|------|
| Code | Text | Code | Text |
| | | | |

4. Teaching and Learning Methods

1. Interactive Lectures
2. Discussion and brain storming
3. Case study /problem solving
4. Research and presentation
5. Practical Learning
6. Guiding during office hours

Course Schedule

| No | Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|----|--------------------|--|--------------------|--|---------------------------------------|---|--------------------------|
| | | | | Theoretical teaching (lectures/discussion groups/) | Training (Practical/ Clinical/) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| | 1 | course (introduction)-1 | 3 | 1 (Week Number) | 4 | total course Marks | |
| 1 | 2 | 2 – (introduction) | 3 | 1 | 4 | | |
| 2 | 3 | 3 – Electrochemistry | 3 | 1 | 4 | | |
| 3 | 4 | 4 – Atom Chemistry | 3 | 1 | 4 | | |
| | 5 | 5 – Surface Chemistry | 3 | 1 | 4 | | |
| | 6 | 6 – Carbohydrate | 3 | 1 | 4 | | |
| | 7 | Mid term exam | | | | | |
| | 8 | 8 – Lipids I | 3 | 1 | 4 | | |
| | 9 | 9 – Lipids II | 3 | 1 | 4 | | |
| | 10 | 10 – Hormones I | 3 | 1 | 4 | | |
| | 11 | 11 – Hormones II | 3 | 1 | 4 | | |
| | 12 | 12 – vitamins and minerals I | 3 | 1 | 4 | | |
| | 13 | 13 – vitamins and minerals II | 3 | 1 | 4 | | |
| | 14 | Practical exam | | | | | |
| | 15-16 | Final exam | | | | | |

*** The methods mentioned are examples, the organization may add and/or delete**

6. Learning Resources and Supportive Facilities *

| | | |
|---|--|--|
| Learning resources (books, scientific references, | The main (essential) reference for the course (must be written in full according to the scientific documentation method) | Shaimaa Faheem- Physical chemistry - 2025 |
| | Other References | Physical chemistry |

| | | |
|--|--|--|
| etc.) * | Electronic Sources (Links must be added) | Elements Physical Chemistry Authors: by Peter Atkins (Author), Julio de Paula (Author) |
| | Learning Platforms (Links must be added) | https://bislms.mans.edu.eg/moodle2024 |
| | Other (to be mentioned) | https://www.ekb.eg/ar |
| Supportive facilities & equipment for teaching and learning * | Devices/Instruments | Projector, Desktop Computer, digital balance |
| | Supplies | Whiteboard Markers, , Medical Gloves, Test Tubes , burette , conical flask , and chemicals |
| | Electronic Programs | ابن الهيثم Model |
| | Skill Labs/ Simulators | Practical Skills Labs |
| | Virtual Labs | ----- |
| | Other (to be mentioned) | ----- |

*** The list mentioned is an example, the institution may add and/or delete depending on the nature of the course**

Name and Signature
Course Coordinator
Dr/ Shaimaa Faheem

Name and Signature
Program Coordinator

Dr/ heba allah Dowidar