وزارة التعليم العالي والبحث العلمي

جـــهاز الإشـــراف والتقـويم العلـمي

دائرة ضمان الجودة والاعتماد الأكاديمي

قسم الاعتماد الدولي

# استمارة وصف البرنامج الأكاديمي للدراسة الأولية لقسم الكيمياء للعام الدراسي 2024-2025 حسب مسار بولونيا

## وصف البرنامج الاكاديمي

**اسم الجامعة :** جامعة بابل

**الكلية/ المعهد:** كلية العلوم للبنات

**اسم البرنامج الأكاديمي او المهني :** بكالوريوس علوم الكيمياء

**اسم الشهادة النهائية :** بكالوريوس في الكيمياء

**النظام الدراسي :** مسار بولونيا

**تاريخ اعداد الوصف :** 8/ 2025/10

**تاريخ ملء الملف :** 14/ 10/ 2024

**التوقيع:**

**اسم رئيس قسم:** ا.د. حازم يحيى محمد علي

**التاريخ** 14 / 10 / 2024

**التوقيع:**

**اسم المعاون العلمي:** أ. د. كوثر محمد علي حسن

**التاريخ** 14 / 10 / 2024

**دقق الملف من قبل**

**شعبة ضمان الجودة والأداء الجامعي**

**اسم مدير شعبة ضمان الجودة والأداء الجامعي :** م. د. محمد جواد جادر

**التاريخ** 14 / 10 / 2024

**مصادقة السيد العميد**

**التاريخ** 14 / 10 / 2024

## مقدمة وصف البرنامج الأكاديمي

يهدف برنامج البكالوريوس في قسم الكيمياء إلى إعداد كوادر علمية وبحثية مؤهلة تمتلك قاعدة معرفية متينة في مختلف اختصاصات الكيمياء كالتحليليه ، الفيزيائيه ، الحياتيه واللاعضويه والعضويه، قادره على النهوض ورفع المستوى العلمي في بلدنا الحبيب مع تركيز خاص على التقنيات المختبريه المتنوعهكالاشعة فوق البنفسجية والاشعة المرئيه والفوق بنفسجيه وغيرها. يوفر البرنامج للطلبة مزيجاً متكاملاً من الأساسيات النظرية والتدريب العملي المتقدم.

يمتاز البرنامج بوجود مختبرات متطورة مزودة بأحدث الاجهزه، ويعتمد على أسلوب تعلم قائم على المشاريع البحثية العمليه، مما يعزز قدرة الطلبة على الابتكار وحل المشكلات العلمية والتقنية المعقدة، ويؤهلهم للانخراط في البحث والتطوير أو العمل في القطاعات المتقدمة.

يخضع المنهج لمراجعة دورية لضمان توافقه مع المعايير الأكاديمية الدولية وتطورات سوق العمل، ويشمل فرص تدريب ميداني ، مما يمنح الخريجين ميزة تنافسية في مجالات العمل أو مواصلة الدراسات العليا في أرقى الجامعات العالمية.

# نـــــــــموذج وصف البرنامج الأكاديمي

## 1.رؤية البرنامج

أعداد كادر علمي وتقني متخصص بتقنيات التحليلات الكيميائيه مع القدره على التعامل وبمهنيه عاليه مع كافة التقنيات بالتحليلات الكيميائيه ومنها التحليلات المهتمه بمعالجه التلوث من المواد والعناصر الكيميائيه الثقيله كالرصاص والزئبق التي تؤثر بحياه المواطنين. كذلك مساهمة القسم بحركة البحوث العلمية و المؤتمرات التعريفية و التطويرية و الاستشارية. تم اعتماد المناهج الموحده مع اغلب جامعات العراق –قسم الكيمياء لغرض سهوله التنقل بين الجامعات اضافه للاستفاده العلمية منها ، مع مراعاة متطلبات الكلية ككلية علمية حسب مسار بولونيا .

## 2.رسالة البرنامج

يسعى قسم الكيمياء في كلية العلوم للبنات ، وتكاملا" مع رسالة الكلية في تلبية حاجات المجتمع من الكوادر المختصه في الكيمياء كالتحليلات المرضية واستخدام التقنيات الحديثة في مجال تحليل العناصر السامه وغير السامه في كافة التطبيقات العلمية والعملية خاصة في المجال الطبي والصناعي وما تطلبه ذلك من تهيئة الكوادر البحثية المتخصصة للعمل في هذا المجال ولمواكبة اخر التطورات فيه .

تحقيقا لرؤيا كلية العلوم للبنات و للقيام بدورها الريادي لتبوء مكانة علمية مرموقة بين الكليات المحلية و العربية و الأجنبية يسعى قسم الكيمياء إلى نشر و ترسيخ أحدث المعلومات عن الكيمياء في المجتمع العراقي لمواكبة التطور الهائل الذي تحقق خلال العقود الثلاثة الأخيرة في هذا المضمار وعلى كافة الأصعدة من النانو تكنولوجي و حتى الفضاء الخارجي

## 3. اهداف البرنامج

1. إعداد كوادر كفؤة في مجال علوم الكيمياء
2. المساهمة في تطوير الكوادر العاملة في مجال علوم الكيمياء في القطاعات المختلفة كصناعة الاسمدة والزيوت والالبان .
3. تطوير منظومة العمل في مجال اختصاص الكيمياء
4. نشر الوعي العلمي في مجال الكيمياء
5. احتساب العمل في المجال الصناعي ذو العلاقة بالكيمياء بموجب مواصفة الايزو
6. تكليف الطلبة بواجبات داخل وخارج الكلية

## 4.الاعتماد البرامجي

لا يوجد

## 5.المؤثرات الخارجية الاخرى

لا يوجد

هيكلية البرنامج

| هيكلية البرنامج | عدد المقررات | وحدة دراسية | النسبة مئوية | الملاحظات |
|---|---|---|---|---|
| متطلبات المؤسسة | 13 | 19 | %13.57 | اساسي |
| متطلبات الكلية | 2 | 4 | %2.85 | اساسي |
| متطلبات القسم | 46 | 117 | %83.57 | اساسي |
| التدريب الصيفي | لايوجد | لايوجد | / | / |

## 7.وصف البرنامج

| السنة /المستوى | رمز المقرر او المساق | اسم المقرر او المساق | الساعات المعتمدة | |
|---|---|---|---|---|
| | | | نظري | عملي |

# المرحلة الاولى

Republic of Iraq - Ministry of Higher Education and Scientific Research
University of Babylon
Bachelor's degree in chemistry science (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum (2024 - 2025)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة بابل
بكالوريوس في علوم الكيمياء (الدورة الأولى)
أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٤-٢٠٢٥

| Level | Semeste | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w | Lect (hr/w | Lab (hr/w | Pr (hr/w | Tut (hr/w | Semn (hr/w | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | One | 1 | CHEM1111 | Qualitative Analysis Chemistry | كيمياء التحليل النوعي | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 137 | 200 | 8.00 | C | |
| | | 2 | CHEM1112 | Inorganic1 | اللاعضوية ١ | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 142 | 175 | 7.00 | C | |
| | | 3 | CHEM1103 | Cytology | علم الخليه | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | S | |
| | | 4 | CHEM1104 | Labortary Safty | السلامة والامن الكيميائي | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 92 | 125 | 5.00 | S | |
| | | 5 | UOBAB1104 | Human and Democracy | حقوق الانسان والديمقراطيه | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | 6 | UOBAB1102 | Arabic Language | اللغة العربيه | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 | 0 | 4 | 0 | 0 | 0 | 18 | 258 | 492 | 750 | 30.00 | | |

| Level | Semeste | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w | Lect (hr/w | Lab (hr/w | Pr (hr/w | Tut (hr/w | Semn (hr/w | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UGI | | 1 | CHEM1201 | Volumetric Analysis Chemistry | كيمياء التحليل الحجمي | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 137 | 200 | 8.00 | C | CHEM1111 |
| | | 2 | CHEM1202 | Inorganic 2 | اللاعضوية ٢ | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 142 | 175 | 7.00 | C | CHEM1112 |
| | | 3 | CHEM1203 | Mathematics I | رياضيات I | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | S | |
| | Two | 4 | CHEM1204 | Physics Science | الفيزياء | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | S | |
| | | 5 | UOBABb4 | Computer I | حاسوب I | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 42 | 75 | 3.00 | B | |
| | | 6 | UOBABb1101 | English Language I | لغة الانكليزية I | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 | 0 | 4 | 0 | 0 | 0 | 18 | 258 | 492 | 750 | 30.00 | | |

# المرحلة الثانيه

Republic of Iraq - Ministry of Higher Education and Scientific Research
University of Babylon
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Program Curriculum (2024 - 2025)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة بابل
بكالوريوس في علوم الكيمياء (الدورة الأولى)
أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٤-٢٠٢٥

| Level | Semester | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w | Lect (hr/w | Lab (hr/w | Pr (hr/w | Tut (hr/w | Semn (hr/w | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | One | 1 | CHEM2311 | Chemistry of represented elements 1 | كيمياء العناصر الممثلة١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM2302 | Gravimetric analysis | التحليل الوزني | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM2313 | Thermodynamics1 | الديناميه الحراريه١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 4 | CHEM2314 | Organic Chemistry1 | الكيمياء العضوية١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 5 | CHEM2305 | Differential equations | المعادلات التفاضلية | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 42 | 75 | 3.00 | S | |
| | | 6 | | Computer 2 | الحاسوب ٢ | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 42 | 75 | 3.00 | S | |
| | | | | | | Total | 12 | 0 | 8 | 0 | 0 | 0 | 18 | 318 | 432 | 750 | 30.00 | | |

| Level | Semeste | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w | Lect (hr/w | Lab (hr/w | Pr (hr/w | Tut (hr/w | Semn (hr/w | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UGI | | 1 | CHEM2401 | Chemistry of represented elements 2 | كيمياء العناصر الممثلة ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | CHEM2311 |
| | | 2 | CHEM2402 | Separation Methods | طرق الفصل | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM2403 | Thermodynamics 2 | الديناميه الحراريه ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | CHEM2313 |
| | Two | 4 | CHEM2404 | Organic Chemistry 2 | الكيمياء العضوية ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | CHEM2314 |
| | | 5 | UOBAB2301 | Baath Party crimes | جرائم البعث البائد | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | S | |
| | | | UOBAB2302 | English Languagell | اللغة الانكليزيه II | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | S | |
| | | | UOBAB1102 | Arabic Language | اللغة العربيه | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 | 0 | 8 | 0 | 0 | 0 | 18 | 318 | 432 | 750 | 30.00 | | |

# المرحلة الثالثه

University of Babylon
Bachelor's degree in chemistry science (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum (2025 - 2026)

جامعة بابل
بكالوريوس في علوم الكيمياء (الدورة الأولى)
أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٥-٢٠٢٦

| Level | Semester | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequis Module(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UGI | One | 1 | CHEM3501 | Electrochemistry | الكيمياء الكهربائيه | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM3502 | Coordination chemistry1 | الكيمياء التناسقية١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM3503 | Organic Chemistry 3 | الكيمياء العضوية ٣ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 4 | CHEM3504 | Biochemistry1 | الكيمياء الحياتية ١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 5 | CHEM3505 | Industrial Chemistry | الكيمياء الصناعية | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | B | |
| | | 6 | CHEM3506 | Environmental Chemistry | كيمياء البيئه | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | S | |
| | | | | | | Total | 12 | 0 | 8 | 0 | 0 | 0 | 18 | 318 | 432 | 750 | 30.00 | | |

| UGI | emest | No. | Module Code | Module Name in English | اسم المادة الدراسية | Langua | SSWL (hr/w) CL (hr/wect (hr/ab (hr/v^r (hr/wut (hr/wemn (hr/ | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequis Module(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Two | 1 | CHEM3601 | Chemical kinetics | الكيمياء الحركيه | English | 2 0 2 0 0 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM3602 | Coordination chemistry2 | الكيمياء التناسقية٢ | English | 2 0 2 0 0 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM3603 | Organic Chemistry 4 | الكيمياء العضوية ٤ | English | 2 0 2 0 0 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 4 | CHEM3604 | Biochemistry2 | الكيمياء الحياتية ٢ | English | 2 0 2 0 0 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 5 | CHEM3605 | Industrial chemistry applications | تطبيقات الكيمياء الصناعية | English | 2 0 0 0 0 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | 5 | CHEM3606 | Research Methodology | منهج بحث | Arabic | 2 0 0 0 0 0 | 3 | 33 | 17 | 50 | 2.00 | S | |
| | | 6 | CHEM3607 | Nanotechnology | كيمياء النانو | English | 2 0 0 0 0 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 14 0 8 0 0 0 | 18 | 351 | 399 | 750 | 30.00 | | |

# المرحلة الرابعة

Republic of Iraq - Ministry of Higher Education and Scientific Research
University of Babylon
Bachelor's degree in chemistry science (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum (2026 - 2027)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة بابل
بكالوريوس في علوم الكيمياء (الدورة الأولى)
أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٦-٢٠٢٧

| Level | Semester | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w) | Lect (hr/w | Lab (hr/w | Pr (hr/w) | Tut (hr/w) | Semn (hr/w | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UGI | One | 1 | CHEM4701 | Instrumental analysis 1 | التحليل الالي ١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM4702 | Clinical Biochemistry1 | الكيمياء السريرية١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM4703 | Quantum Chemistry | كيمياء الكم | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | C | |
| | | 4 | CHEM4704 | Photochemistry | كيمياء الضوء | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | C | |
| | | 5 | CHEM4705 | Polymer Chemistry | كيمياء البوليمرات | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | B | |
| | | 6 | CHEM4706 | Research project | مشروع بحث تخرج | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | B | |
| | | | | | | Total | 12 | 0 | 8 | 0 | 0 | 0 | 18 | 510 | 290 | 800 | 30.00 | | |

| UGI | emest | No. | Module Code | Module Name in English | اسم المادة الدراسية | Langua | SSWL (hr/w) CL (hr/wect (hr/ab (hr/v^r (hr/wut (hr/wemn (hr/ | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Two | 1 | CHEM4801 | Instrumental analysis 2 | التحليل الالي ٢ | English | 2 0 2 0 0 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM4802 | Clinical Biochemistry2 | الكيمياء السريرية٢ | English | 2 0 2 0 0 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM4803 | Spectroscopy | الاطياف الجزيئية | English | 2 0 0 0 0 0 | 3 | 33 | 42 | 75 | 3.00 | C | |
| | | 4 | CHEM4804 | Identification of organic chemistry | التشخيص العضوي | English | 2 0 3 0 0 0 | 3 | 78 | 97 | 175 | 7.00 | C | |
| | | 5 | CHEM4805 | Petroleum Chemistry | كيمياء النفط | English | 2 0 2 0 0 0 | 3 | 63 | 87 | 150 | 6.00 | B | |
| | | 6 | CHEM4806 | Hetrocyclic | حلقيه غير متجانسه | English | 2 0 0 0 0 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 0 9 0 0 0 | 18 | 333 | 417 | 750 | 30.00 | | |

| | |
|---|---|
| **8.مخرجات التعلم المتوقعة للبرنامج** | |
| **المعـــــــــــرفة** | |
| المعرفة والفهم | 1. أن يتعرف الطالب على مفهوم الكيمياء<br>2. أن يتعرف الطالب على مفهوم مسار بولونيا<br>2. أن يصنف الاحتياجات لتطوير الكيمياء<br>3. أن يفصل المواصفة الكيميائية حسب نظام الايزو<br>4. أن يقيم كلفة صيانة معدات التصنيع الكيميائي |
| **المهـــــــــــارات** | |
| المهارات الخاصة بالموضوع | 1. معرفة الطالب لمفهوم الكيمياء<br>2. أهمية الكيمياء في مجالات الحياة<br>3. تمكين الطالبات من تحاليل تكاليف العمل في مجال الصناعات الكيميائية |
| مهارات التفكير | 1. مهارة التفكير حسب قدرة الطالب (**الهدف من هذه المهارة هو أن يعتقد الطالب بما هو ملموس ( قدرات الطالب) وفهم متى وماذا وكيف يجب أن يفكر ويعمل على تحسين القدرة على التفكير بشكل معقول )**<br>2. مهارة التفكير العالية **( الهدف من هذه المهارة هو تعليم التفكير جيدا قبل يتخذ القرار الذي يحدد حياة الطالب )**<br>3. مهارات التفكير الناقد **(هي مصطلح يرمز لأعلى مستويات التفكير والتي يهدف إلى طرح مشكلة ما ثم تحليلها** |
| **القيـــــــــم** | |
| طرائق التقييم | 1- Exams<br>2- Learning Matrix( مصفوفة التعلم )<br>3- Which Face( طريقة التعبير بالوجوه)<br>4- CAT ( التغذية الراجعة من الطلاب)<br>**5- كوزات**<br>**6- واجبات داخل الكلية**<br>**7- واجبات خارج الكلية** |

## 9. استراتيجيات التعليم والتعلم

**استراتيجيات التعـــــــــــــــلم**

1-استراتيجية التفكير حسب قدرة الطالب ( مثال : أذا استطاع الطالب أن يتعلم مفهوم الادارة الصحيح يكتسب مهارة أدارة وتنظيم حياته الشخصية) .

2-استراتيجية مهارة التفكير العالية (مثال اذا كان الطالب يرغب في اتخاذ قرار جيد، من المهم أن يفكر جيدا قبل أن يتخذ القرار و إذا قرر دون تفكير أو إذا كان لا يستطيع التفكير جيدا أو إذا كان لا يستطيع أن يقرر أو ربما لن يقرر فهذا يعني ليس لديه مهارة التفكير العالية).

3-استراتيجية التفكير الناقد في التعلم (Critical Thanking) **(هي مصطلح يرمز لأعلى مستويات التفكير والتي يهدف إلى طرح مشكلة ما ثم تحليلها منطقياً للوصول إلى الحل المطلوب)**.

4-العصف الذهني.

**طرائـــــــــــــق التعليم والتعلم**

1- طريقة القاء المحاضرات .
2- Student Center
3- ( المجاميع الطلابية Team Project)
4- ( Work shop ورش العمل)
5- ( الرحلات العلمية لمتابعة الواقع البيئي)
6- ( Learning Technologies on Campus التعلم الالكتروني داخل الحرم الجامعي )
7- (experiential learning التعلم التجريبي)
8 - (Application Learning تطبيق التعليم)

## 10. طرائـــــــــــق التقييم

1- Exams
2- Matrix( مصفوفة التعلم )
3- Which Face( طريقة التعبير بالوجوه)
4- CAT ( التغذية الراجعة من الطلاب)
5- Learning Triangle(مثلث التعلم )

## 11. الهيئـــــــــة التدريسية

### اعضاء هيئة التـــــــــدريس

| الرتبة العلمية | اسم التدريسي | التخصص | | المتطلبات/المهارات الخاصة (ان وجدت) | اعداد الهيئة التدريسية | |
|---|---|---|---|---|---|---|
| | | العام | الدقيق | | ملاك | محاضر |
| استاذ | د.حازم يحيى محمد علي | الكيمياء | كيمياء فيزيائيه | | √ | |
| استاذ | د.اياد فاضل محمد | الكيمياء | كيمياء فيزيائيه | | √ | |
| استاذ | د.محمد حامد سعيد | الكيمياء | كيمياء لاعضويه | | √ | |
| استاذ | د. طلعت طارق خليل | الكيمياء | كيمياء حياتيه | | √ | |
| استاذ | د .صادق عبد الحسين كريم | الكيمياء | كيمياءعضويه/ بوليمر | | √ | |
| استاذ | د.فؤاد فاضل محمد | الكيمياء | كيمياء تحليليه | | √ | |
| استاذ | د .اسيل مشتاق كاظم | الكيمياء | كيمياء تحليليه | | √ | |
| استاذ مساعد | د.نور عبد الرزاق | الكيمياء | كيمياءعضويه | | √ | |
| استاذ مساعد | د.سعاد طه سعد | الكيمياء | كيمياء لاعضويه | | √ | |
| استاذ مساعد | د.احمد حسن شنتاف | الكيمياء | كيمياءعضويه | | √ | |
| استاذ مساعد | د.علي طالب بدر | الكيمياء | كيمياء لاعضويه | | √ | |

| | | | | | | |
|---|---|---|---|---|---|---|
| استاذ مساعد | **د. زينب هاشم خضير** | الكيمياء | كيمياء تحليليه | | √ | |
| استاذ مساعد | **د. زياد عمران موسى** | الكيمياء | كيمياءعضويه | | √ | |
| مدرس | **محمد عيدان حسن** | الكيمياء | كيمياء تحليليه | | √ | |
| مدرس | **علي محسن محمد** | الكيمياء | كيمياء فيزياويه | | √ | |
| مدرس | **شيرين حمزه عباس** | الكيمياء | كيمياء حياتيه | | √ | |
| مدرس مساعد | **رنا صلاح نوري** | الكيمياء | كيمياء حياتيه | | √ | |

## التطويـــــــــــــر المهني

## توجيـــــــــه اعضاء هيئة التدريس الجدد

التدريس كأي فن اخر يمكن اكتسابه من خلال ممارسة وأتباع طرقه وأصوله بشرط الرغبة الصادقة مزاولة مهنة التدريس والطريقة في التربية تعني اتخاذ خطوات مترابطة للوصول الى هدف معين ترجى تحقيقهُ. لذلك يجب ان يتبع المبادئ الاساسية في التدريس الجيد والتي هي:

1- توجيه المتعلمين وارشادهم عن طريق خلق مواقف تعليمية تؤدي إلى فعاليات مرغوبة فيها.

2- توفير جو من المحبة والعطف والتعاون بين المعلم والمتعلمين وبين المتعلمين أنفسهم من خلال حبه لطلبته تمييز وعدم الأكثار من التأنيث.

3- اعتماد القيادة الديمقراطية من خلال العلاقة الحسية بين المدرس وطلبته مما يقودهم الى الضبط المبني على الاحترام المتبادل وخلق جو تعاوني بين الطلبة وبين المدرس وطلبته.

| التطويـــــــــــر المهني لأعضاء هيئة التدريس |
| --- |
| 1- استراتيجية التفكير حسب قدرة الطالب ( مثال : أذا استطاع الطالب أن يتعلم مفهوم الادارة الصحيح يكتسب مهارة أدارة وتنظيم حياته الشخصية) . و استراتيجية مهارة التفكير العالية (مثال اذا كان الطالب يرغب في اتخاذ قرار جيد، من المهم أن يفكر جيدا قبل أن يتخذ القرار و إذا قرر دون تفكير أو إذا كان لا يستطيع التفكير جيدا أو إذا كان لا يستطيع أن يقرر أو ربما لن يقرر فهذا يعني ليس لديه مهارة التفكير العالية).<br>2- المهارات العامة والمنقولة (المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي).<br>3- التواصل اللفظي .<br>4- العمل الجماعي.<br>5- تحليل والتحقيق (جمع المعلومات بشكل منهجي وعلمي لتأسيس الحقائق والمبادئ حل المشكلة).<br>6- مبادرة (الدافعية على العمل والقدرة على المبادرة، وتحديد الفرص و وضع الأفكار والحلول المطروحة. |
| **12.معيـــــــــــــار القبول** |
| قبول مركزي وقبول موازي |
| **13.اهـــــــــم مصادر المعلومات عن البرنامج** |
| 1- الموقع الالكتروني للكلية والجامعة.<br>https://csg.uobabylon.edu.iq/<br>https://csg.uobabylon.edu.iq/department/?cdid=4<br>**https://csg.uobabylon.edu.iq/department/dep_lectures.aspx?cdid=4**<br>2- دليل الجامعة . https://systems.uobabylon.edu.iq /<br>3- أهم الكتب والمصادر الخاصة بمكتبة الكلية. |

| 14.خطـــــــــــة تطوير البرنامج |
| --- |
| تم تطبيق مسار بولونيا على طلبة المرحلة الاولى والعمل على تطبيقه على المراحل القادمة مع عمل ورش عمل وسمنارات لتعريف اعضاء الهيئة التدريسية على متطلبات مسار بولونيا وكيفية العمل به ومناقشة السلبيات والمعوقات وايجاد الحلول لها. تم تطبيق النظام الالكتروني في عملية التعليم . |

| مخطط مهارات المنهج | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| يرجى وضع اشارة في المربعات المقابلة لمخرجات التعلم الفردية من البرنامج الخاضعة للتقييم | | | | | | | | | | | | | | | | | | | | | | | |
| | | | مخرجات التعلم المطلوبة من البرنامج | | | | | | | | | | | | | | | | | | | | |
| السنة / المستوى | رمز المقرر | اسم المقرر | اساسي ام اختياري | المعرفة والفهم | | | | المهارات الخاصة بالموضوع | | | | مهارات التفكير | | | | المهارات العامة والمنقولة ( أو) المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي | | | |
| | | | | أ1 | أ2 | أ3 | أ4 | ب1 | ب2 | ب3 | ب4 | ج1 | ج2 | ج3 | ج4 | د1 | د2 | د3 | د4 |
| المرحلة الاولى (الكورس الاول) | UOBAB0603011 | كيمياء التحليل النوعي | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603012 | اللاعضوية-1 | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603013 | علم الخليه | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603014 | السلامه والامن الكيمياوي | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBABb3 | حقوق الانسان والديمقراطيه | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB1102 | اللغة العربيه | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

| مخطط مهارات المنهج | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| يرجى وضع اشارة في المربعات المقابلة لمخرجات التعلم الفردية من البرنامج الخاضعة للتقييم | | | | | | | | | | | | | | | | | | | | | | | |
| | | | مخرجات التعلم المطلوبة من البرنامج | | | | | | | | | | | | | | | | | | | | |
| السنة / المستوى | رمز المقرر | اسم المقرر | اساسي ام اختياري | المعرفة والفهم | | | | المهارات الخاصة بالموضوع | | | | مهارات التفكير | | | | المهارات العامة والمنقولة ( أو) المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي | | | |
| | | | | أ1 | أ2 | أ3 | أ4 | ب1 | ب2 | ب3 | ب4 | ج1 | ج2 | ج3 | ج4 | د1 | د2 | د3 | د4 |
| المرحلة الاولى (الكورس الثاني) | UOBAB0603026 | اللغة الانكليزية | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603021 | كيمياء التحليل الحجمي | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603022 | اللاعضوية-2 | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603023 | الرياضيات | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603024 | الفيزياء | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603025 | برمجة الحاسوب | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

| مخطط مهارات المنهج | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| يرجى وضع اشارة في المربعات المقابلة لمخرجات التعلم الفردية من البرنامج الخاضعة للتقييم | | | | | | | | | | | | | | | | | | | | | | | |
| | | | مخرجات التعلم المطلوبة من البرنامج | | | | | | | | | | | | | | | | | | | | |
| السنة / المستوى | رمز المقرر | اسم المقرر | اساسي ام اختياري | المعرفة والفهم | | | | المهارات الخاصة بالموضوع | | | | مهارات التفكير | | | | المهارات العامة والمنقولة ( أو) المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي | | | |
| | | | | أ1 | أ2 | أ3 | أ4 | ب1 | ب2 | ب3 | ب4 | ج1 | ج2 | ج3 | ج4 | د1 | د2 | د3 | د4 |
| المرحلة الاولى (الكورس الاول) | UOBAB0603011 | كيمياء التحليل النوعي | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603012 | اللاعضوية-1 | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603013 | علم الخليه | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603014 | السلامه والامن الكيمياوي | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBABb3 | حقوق الانسان والديمقراطيه | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB1102 | اللغة العربيه | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

| مخطط مهارات المنهج | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| يرجى وضع اشارة في المربعات المقابلة لمخرجات التعلم الفردية من البرنامج الخاضعة للتقييم | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | مخرجات التعلم المطلوبة من البرنامج | | | | | | | | | | | | | | | | | | | |
| السنة / المستوى | رمز المقرر | اسم المقرر | اساسي ام اختياري | المعرفة والفهم | | | | المهارات الخاصة بالموضوع | | | | مهارات التفكير | | | | المهارات العامة والمنقولة ( أو) المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي | | | |
| | | | | أ1 | أ2 | أ3 | أ4 | ب1 | ب2 | ب3 | ب4 | ج1 | ج2 | ج3 | ج4 | د1 | د2 | د3 | د4 |
| المرحلة الاولى (الكورس الثاني) | UOBAB0603026 | اللغة الانكليزية | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603021 | كيمياء التحليل الحجمي | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603022 | اللاعضوية-2 | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603023 | الرياضيات | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603024 | الفيزياء | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603025 | برمجة الحاسوب | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

**Ministry of Higher Education and Scientific Research**

**Scientific Ssupervision and Evaluation device**

**Department of Quality Assurance and Academic Accreditation**

**International Accreditation Department**

# *Academic Program Description For the Department of Chemistry for the Academic year 2025-2024according Bologna process*

# *Academic Program Description Form*

**University Name:** University of Babylon

**College/Institute:** College of Science for Women

**Name of the academic or professional program:** Bachelor's in Chemistry

**Name of final degree:** Bachelor's in Chemistry

**Study system:** Bologna track

**Description preparation date:** 8/10/2024

**Date of filling out the file:** 14/10/2024

**Signature:**

**Name of Department Head**

Hazim Yahya Mohammed Ali

**Date:** 14/10/2024

**Signature:**

**Name of Scientific Assistant**

Dr. Kawthar Mohammed Ali Hassan

**Date:** 14/10/2024

**The file is checked by**

**Department of Quality Assurance and University Performance**

**Director of the Quality Assurance and University Performance Department:**

**Mohammed J.Jader**

**Date: 14/10/2024**

***Approval of the Dean***

## Program Description – Introduction

The Bachelor's program in the Department of Chemistry aims to prepare qualified scientific and research-oriented graduates with a solid knowledge base in various branches of chemistry, including analytical, physical, biological, inorganic, and organic chemistry. The program equips students with the ability to contribute to advancing the scientific and research level in our country, with special emphasis on developing skills in modern laboratory techniques such as spectroscopic methods (UV, visible, and infrared) and other advanced analytical tools.

The program combines strong theoretical foundations with advanced practical training and is distinguished by its well-equipped laboratories containing state-of-the-art instruments. It adopts a learning approach based on research and applied projects, which enhances students' ability to innovate and solve complex scientific and technical problems, preparing them to engage in research and development or work in advanced scientific sectors.

The curriculum undergoes regular review to ensure alignment with international academic standards and labor market requirements. It also includes field training opportunities, providing graduates with a competitive advantage in the job market or when pursuing postgraduate studies at prestigious international universities.

# *Academic Program Description*

## 1. Program Vision

Preparing a scientific and technical staff specialized in chemical analysis techniques with the ability to deal with all techniques in chemical analysis with high professionalism, including analyzes concerned with treating pollution from heavy chemical substances and elements such as lead and mercury that affect the lives of citizens. The department also contributes to the scientific research movement and introductory, developmental and advisory conferences. The unified curricula have been adopted with most Iraqi universities - the Department of Chemistry for the purpose of easy movement between departments in addition to scientific benefit from them, taking into account the requirements of the college as a scientific college according to Bologna process.

## 2. Program Mission

The Department of Chemistry at the College of Science for Girls seeks, in integration with the college's mission, to meet the community's needs for cadres specialized in chemistry, such as pathological analyzes and the use of modern techniques in the field of analysis of toxic and non-toxic elements in all scientific and practical applications, especially in the medical and industrial fields, and the preparation of cadres required by this. Specialized research to work in this field and keep up with the latest developments in it Bologna process.

In order to achieve the vision of the College of Science for Girls and to carry out its pioneering role in assuming a prominent scientific position among local, Arab and foreign colleges, the Department of Chemistry seeks to disseminate and consolidate the latest information about chemistry in Iraqi society to keep pace with the tremendous development that has been achieved during the last three decades in this field and at all levels of Nanotechnology and even outer space.

## 3. Program Objectives

.1Preparing efficient cadres in the field of chemistry sciences

.2 Contribute to the development of cadres working in the field of chemical sciences in various sectors such as the manufacture of fertilizers, oils and dairy.

.3 Developing the work system in the field of chemistry

.4 Spreading scientific awareness in the field of chemistry

5. Calculation of work in the industrial field related to chemistry according to Bologna process.

## 4. Programmatic Accreditation

nothing

## 5. Other External Influences

nothing

## 6. Program Structure

| *Program Structure* | *Number of courses* | *Study unit* | *Percentage* | *Notes* |
|---|---|---|---|---|
| Institution Requirements | 13 | 19 | 13.57 % | Basic |
| College Requirements | 2 | 4 | 2.85 % | Basic |
| Department Requirements | 46 | 117 | 83.57 % | Basic |
| Summer Training | nothing | nothing | / | / |

## 7. Program Description

| Year/level | course code | Name of the course | Credit hours | |
|---|---|---|---|---|
| | | | Theoretical | Practical |

## First stage

Republic of Iraq - Ministry of Higher Education and Scientific Research
University of Babylon
Bachelor's degree in chemistry science (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum (2024 - 2025)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة بابل
بكالوريوس في علوم الكيمياء (الدورة الأولى)
أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٤-٢٠٢٥

| Level | Semeste | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w | ect (hr/w | ab (hr/w | Pr (hr/w | Tut (hr/w | emn (hr/w | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | One | 1 | CHEM1111 | Qualitative Analysis Chemistry | كيمياء التحليل النوعي | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 137 | 200 | 8.00 | C | |
| | | 2 | CHEM1112 | Inorganic1 | اللاعضوية ١ | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 142 | 175 | 7.00 | C | |
| | | 3 | CHEM1103 | Cytology | علم الخليه | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | S | |
| | | 4 | CHEM1104 | Labortary Safty | السلامة والامن الكيمياني | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 92 | 125 | 5.00 | S | |
| | | 5 | UOBAB1104 | Human and Democracy | حقوق الانسان والديمقراطيه | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | 6 | UOBAB1102 | Arabic Language | اللغة العربيه | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 | 0 | 4 | 0 | 0 | 0 | 18 | 258 | 492 | 750 | 30.00 | | |

| UGl | Semeste | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w | ect (hr/w | ab (hr/w | Pr (hr/w | Tut (hr/w | emn (hr/w | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | CHEM1201 | Volumetric Analysis Chemistry | كيمياء التحليل الحجمي | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 137 | 200 | 8.00 | C | CHEM1111 |
| | | 2 | CHEM1202 | Inorganic 2 | اللاعضوية ٢ | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 142 | 175 | 7.00 | C | CHEM1112 |
| | | 3 | CHEM1203 | Mathematics I | رياضيات I | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | S | |
| | Two | 4 | CHEM1204 | Physics Science | الفيزياء | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | S | |
| | | 5 | UOBABb4 | Computer I | حاسوب I | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 42 | 75 | 3.00 | B | |
| | | 6 | UOBABb1101 | English Language I | لغة الانكليزية I | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 | 0 | 4 | 0 | 0 | 0 | 18 | 258 | 492 | 750 | 30.00 | | |

# Second stage

Republic of Iraq - Ministry of Higher Education and Scientific Research
University of Babylon
Bachelor's degree in chemistry science (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum (2024 - 2025)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة بابل
بكالوريوس في علوم الكيمياء (الدورة الأولى)
أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٤-٢٠٢٥

| Level | Semester | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UGI | One | 1 | CHEM2311 | Chemistry of represented elements 1 | كيمياء العناصر الممثلة١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM2302 | Gravimetric analysis | التحليل الوزني | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM2313 | Thermodynamics1 | الديناميه الحراريه١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 4 | CHEM2314 | Organic Chemistry1 | الكيمياء العضوية١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 5 | CHEM2305 | Differential equations | المعادلات التفاضلية | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 42 | 75 | 3.00 | S | |
| | | 6 | | Computer 2 | الحاسوب ٢ | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 42 | 75 | 3.00 | S | |
| | | | | | | Total | 12 | 0 | 8 | 0 | 0 | 0 | 18 | 318 | 432 | 750 | 30.00 | | |

| Level | Semester | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UGI | Two | 1 | CHEM2401 | Chemistry of represented elements 2 | كيمياء العناصر الممثلة ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | CHEM2311 |
| | | 2 | CHEM2402 | Separation Methods | طرق الفصل | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM2403 | Thermodynamics 2 | الديناميه الحراريه ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | CHEM2313 |
| | | 4 | CHEM2404 | Organic Chemistry 2 | الكيمياء العضوية ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | CHEM2314 |
| | | 5 | UOBAB2301 | Baath Party crimes | جرائم البعث البائد | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | S | |
| | | | UOBAB2302 | English Languagell | اللغة الانكليزيه II | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | S | |
| | | | UOBAB1102 | Arabic Language | اللغة العربيه | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 | 0 | 8 | 0 | 0 | 0 | 18 | 318 | 432 | 750 | 30.00 | | |

# Third stage

University of Babylon
Bachelor's degree in chemistry science (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum (2025 - 2026)

جامعة بابل
بكالوريوس في علوم الكيمياء (الدورة الأولى)
أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٥-٢٠٢٦

| Level | Semester | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequis Module(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UGI | One | 1 | CHEM3501 | Electrochemistry | الكيمياء الكهربائيه | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM3502 | Coordination chemistry1 | الكيمياء التناسقية١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM3503 | Organic Chemistry 3 | الكيمياء العضوية ٣ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 4 | CHEM3504 | Biochemistry1 | الكيمياء الحياتية ١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 5 | CHEM3505 | Industrial Chemistry | الكيمياء الصناعية | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | B | |
| | | 6 | CHEM3506 | Environmental Chemistry | كيمياء البيئه | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | S | |
| | | | | | | Total | 12 | 0 | 8 | 0 | 0 | 0 | 18 | 318 | 432 | 750 | 30.00 | | |

| Level | Semester | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequis Module(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UGI | Two | 1 | CHEM3601 | Chemical kinetics | الكيمياء الحركيه | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM3602 | Coordination chemistry2 | الكيمياء التناسقية٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM3603 | Organic Chemistry 4 | الكيمياء العضوية ٤ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 4 | CHEM3604 | Biochemistry2 | الكيمياء الحياتية ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 5 | CHEM3605 | Industrial chemistry applications | تطبيقات الكيمياء الصناعية | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | 5 | CHEM3606 | Research Methodology | منهج بحث | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | S | |
| | | 6 | CHEM3607 | Nanotechnology | كيمياء النانو | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 14 | 0 | 8 | 0 | 0 | 0 | 18 | 351 | 399 | 750 | 30.00 | | |

# Four stage

Republic of Iraq - Ministry of Higher Education and Scientific Research
University of Babylon
Bachelor's degree in chemistry science (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum (2026 - 2027)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة بابل
بكالوريوس في علوم الكيمياء (الدورة الأولى)
أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٦-٢٠٢٧

| Level | Semester | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w) | ect (hr/w | Lab (hr/w | Pr (hr/w) | Tut (hr/w) | Semn (hr/w | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | One | 1 | CHEM4701 | Instrumental analysis 1 | التحليل الالي ١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM4702 | Clinical Biochemistry1 | الكيمياء السريرية١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM4703 | Quantum Chemistry | كيمياء الكم | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | C | |
| | | 4 | CHEM4704 | Photochemistry | كيمياء الضوء | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | C | |
| | | 5 | CHEM4705 | Polymer Chemistry | كيمياء البوليمرات | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | B | |
| | | 6 | CHEM4706 | Research project | مشروع بحث تخرج | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | B | |
| | | | | | | Total | 12 | 0 | 8 | 0 | 0 | 0 | 18 | 510 | 290 | 800 | 30.00 | | |

| UGI | emest | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w | ect (hr/w | ab (hr/w | r (hr/w | ut (hr/w | emn (hr/ | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Two | 1 | CHEM4801 | Instrumental analysis 2 | التحليل الالي ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM4802 | Clinical Biochemistry2 | الكيمياء السريرية٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM4803 | Spectroscopy | الاطياف الجزيئية | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 42 | 75 | 3.00 | C | |
| | | 4 | CHEM4804 | Identification of organic chemistry | التشخيص العضوي | English | 2 | 0 | 3 | 0 | 0 | 0 | 3 | 78 | 97 | 175 | 7.00 | C | |
| | | 5 | CHEM4805 | Petroleum Chemistry | كيمياء النفط | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | B | |
| | | 6 | CHEM4806 | Hetrocyclic | حلقيه غير متجانسه | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 | 0 | 9 | 0 | 0 | 0 | 18 | 333 | 417 | 750 | 30.00 | | |

| *8.The expected learning outcomes of the program* | |
|---|---|
| ***Knowledge*** | |
| Knowledge and Understanding | 1- 1. The student gets to know the concept of chemistry<br>2- 2. To classify the needs for developing chemistry<br>3- 3. To separate the chemical specifications according to the ISO system<br>4- 4. To evaluate the cost of maintaining chemical manufacturing equipment |
| ***Skills*** | |
| Subject-Specific Skills | .1The student's knowledge of the concept of chemistry<br>.2The importance of chemistry in areas of life<br>3. Enabling female students to analyze the costs of working in the chemical industry |
| Thinking Skills | .1Thinking skill according to the student's ability (the goal of this skill is for the student to believe in what is tangible (the student's abilities) and understand when, what and how he should think and work to improve the ability to think reasonably(<br>.2 High thinking skill (the goal of this skill is to teach thinking well before making the decision that determines the student's life(<br>3. Critical thinking skills (a term that symbolizes the highest levels of thinking, which aims to pose a problem and then analyze it |
| | |

| ***Ethics*** | |
|---|---|
| Evaluation methods | 1- Exams<br>2- Learning Matrix<br>3- Which Face<br>4- CAT (student feedback)<br>5- Learning Triangle<br>6- Seminars<br>7- On line lecture |

| ***9. Teaching and Learning Strategies*** |
|---|
| ***Learning strategies*** |
| 1-Thinking strategy according to the student's ability (for example: if the student is able to learn the correct concept of management, he will acquire the skill of managing and organizing his personal life).<br>2- High thinking skill strategy (for example, if the student wants to make a good decision, it is important that he thinks well before he makes the decision, and if he decides without thinking, or if he cannot think well, or if he cannot decide, or perhaps he will not decide, then this This means he does not have high thinking skills.)<br>3- Critical thinking strategy in learning (Critical Thanking) (It is a term that symbolizes the highest levels of thinking, which aims to pose a problem and then analyze it logically to reach the desired solution).<br>4-Brainstorming |

| ***Methods of teaching and learning*** |
| --- |
| 1- Method of giving lectures.<br>2- Student Center<br>3- Student groups<br>4- Workshops<br>5- (Scientific trips to follow up on the environmental reality)<br>6- Learning Technologies on Campus<br>7- (Experiential learning)<br>8- Application Learning) |

| ***10. Evaluation methods*** |
| --- |
| 1- Exams<br>2- Learning Matrix<br>3- Which Face<br>4- CAT (student feedback)<br>5- Learning Triangle<br>***6-*** practical<br>***8-*** tutorial |

## *11. Faculty*

## *Faculty Members*

| ***Academic Rank*** | ***Instructor's name*** | ***Specialization*** | | ***Special Requirements/skills (it applicable)*** | ***Number of the teaching staff*** | |
|---|---|---|---|---|---|---|
| | | ***General*** | ***Special*** | | ***staff*** | ***lecturer*** |
| Professor | Dr. Hazim Yahya Mohammed Ali | Chemistry | Physical Chemistry | | √ | |
| Professor | Dr.Ayad Fahdil Mohammed | Chemistry | Physical Chemistry | | √ | |
| Prof | Dr. Mohmmed Hamid Saaid | Chemistry | Inorganic Chemistry | | √ | |

| | | | | | | |
|---|---|---|---|---|---|---|
| essor | | | | | | |
| Professor | Dr. Talat Tariq Kahlil | Chemistry | Bio Chemistry | | √ | |
| Professor | Dr. Sadiq Abed Al hussain | Chemistry | Organic Chemistry/Polymer | | √ | |
| Professor | Dr.Fuad Fahdil Mohammed | Chemistry | Analytical Chemistry | | √ | |
| Professs | Dr. Assyl Moshtaq Kahdim | Chemistry | Analytical Chemistry | | √ | |

| | | | | | | |
|---|---|---|---|---|---|---|
| or | | | | | | |
| Assistant Professor | Dr. Noor Abed Al razaq | Chemistry | Organic Chemistry | | √ | |
| Assistant Professor | Dr. Suad Taha Saad | Chemistry | Inorganic Chemistry | | √ | |
| As | Dr. Ahmed Hassan Shintaf | Chemistry | Organic Chemistry | | √ | |

| | | | | | | |
|---|---|---|---|---|---|---|
| sistant Professor | | | | | | |
| Assistant Professor | Dr. Ali Talib Bader | Chemistry | Inorganic Chemistry | | √ | |
| Assista | Dr. Zainab Hashim Khudaier | Chemistry | Analytical Chemistry | | √ | |

| | | | | | | |
|---|---|---|---|---|---|---|
| ntProfessor | | | | | | |
| AssistantProfessor | Dr. Ziyad Omran Musaa | Chemistry | Organic Chemistry | | √ | |
| Teacher | Shiren Hamza Abbas | Chemistry | Bio Chemistry | | √ | |
| Teac | Mohammed Edan Hassan | Chemistry | Analytical Chemistry | | √ | |

| | | | | | | |
|---|---|---|---|---|---|---|
| her | | | | | | |
| Teacher | Ali Mohsum Mohammed | Chemistry | Physical Chemistry | | √ | |
| assistant teacher | Rana Salah Norri | Chemistry | Bio Chemistry | | √ | |

***Professional Development***

***Mentoring new faculty members***

Teaching, like any other art, can be acquired by practicing and following its methods and principles, provided that there is a sincere desire to practice the teaching profession, and the method in education means taking interconnected steps to reach a specific goal that you hope to achieve. Therefore, it must follow the basic principles of good teaching, which are:

1- Directing and guiding learners by creating educational situations that lead to desirable activities.

2- Providing an atmosphere of love, kindness and cooperation between the teacher and the learners and between the learners themselves through his love for his students without discrimination and not excessive feminization.

3- Adopting democratic leadership through the emotional relationship between the teacher and his students, which leads them to control based on mutual respect and creating a cooperative atmosphere between the students and between the teacher and his students.

## *Professional development for faculty members*

1- Thinking strategy according to the student's ability (for example: if the student is able to learn the correct concept of management, he will acquire the skill of managing and organizing his personal life). And the high thinking skill strategy (for example, if the student wants to make a good decision, it is important that he thinks well before he makes the decision, and if he decides without thinking or if he cannot think well or if he cannot decide or perhaps he will not decide, this means He does not have high thinking skills.)

2- General and transferable skills (other skills related to employability and personal development).

3- Verbal communication.

4- Teamwork.

5- Analysis and investigation (collecting information systematically and scientifically to establish facts and principles for solving the problem).

## *12. Acceptance criterion*

Central acceptance and parallel acceptance

## *13. The most important sources of information about the program*

1- The website of the college and university.

**https://csg.uobabylon.edu.iq/**
**https://csg.uobabylon.edu.iq/department/?cdid=4**

**https://csg.uobabylon.edu.iq/department/dep_lectures.aspx?cdid=4**

2- University guide .https://systems.uobabylon.edu.iq /

3- The most important books and resources in the college library.

| ***14. Program development plan*** |
| --- |
| The Bologna Process was applied to the students of the first stage, and work is being done to apply it to the next stages, along with conducting workshops and seminars to familiarize faculty members with the requirements of the Bologna Process and how to work with it, and to discuss the negatives and obstacles and find solutions for them. The electronic system was applied in the education process. |

| Program skills Outline | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Required program learning outcomes | | | | | | | | | | | | | | | |
| Year/Level | Course Code | Course Name | Basic or optional | Knowledge | | | | Skills | | | | Ethics | | | | Other skills related to employability and personal development | | | |
| | | | | $A_1$ | $A_2$ | $A_3$ | $A_4$ | $B_1$ | $B_2$ | $B_3$ | $B_4$ | $C_1$ | $C_2$ | $C_3$ | $C_4$ | $D_1$ | $D_2$ | $D_3$ | $D_4$ |
| The first stage, Course (1), according to the Bologna system | UOBAB0603011 | Qualitative Analytical chem. | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603012 | Inorganic -1 | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603013 | Cytology | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603014 | Laboratory safety | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBABb3 | Human and Democracy | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB1102 | Arabic Language | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

| *Program skills Outline* | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | *Required program learning outcomes* | | | | | | | | | | | | | | | |
| *Year/Level* | *Course Code* | *Course Name* | *Basic or optional* | *Knowledge* | | | | *Skills* | | | | *Ethics* | | | | *Other skills related to employability and personal development* | | | |
| | | | | $A_1$ | $A_2$ | $A_3$ | $A_4$ | $B_1$ | $B_2$ | $B_3$ | $B_4$ | $C_1$ | $C_2$ | $C_3$ | $C_4$ | $D_1$ | $D_2$ | $D_3$ | $D_4$ |
| **The first stage, Course (2), according to the Bologna system** | UOBAB0603021 | **Volumetric Analytical chem.** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603022 | **Inorganic -2** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603023 | **Mathematics** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603024 | **Physics Sciences** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603025 | **Computers Program** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603026 | **English Language** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

| مخطط مهارات المنهج | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| يرجى وضع اشارة في المربعات المقابلة لمخرجات التعلم الفردية من البرنامج الخاضعة للتقييم | | | | | | | | | | | | | | | | | | | | | | | |
| | | | مخرجات التعلم المطلوبة من البرنامج | | | | | | | | | | | | | | | | | | | | |
| السنة / المستوى | رمز المقرر | اسم المقرر | اساسي ام اختياري | المعرفة والفهم | | | | المهارات الخاصة بالموضوع | | | | مهارات التفكير | | | | المهارات العامة والمنقولة ( أو) المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي | | | |
| | | | | أ1 | أ2 | أ3 | أ4 | ب1 | ب2 | ب3 | ب4 | ج1 | ج2 | ج3 | ج4 | د1 | د2 | د3 | د4 |
| المرحلة الاولى (الكورس الاول) | UOBAB0603011 | كيمياء التحليل النوعي | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603012 | اللاعضوية-1 | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603013 | علم الخليه | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603014 | السلامه والامن الكيمياوي | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBABb3 | حقوق الانسان والديمقراطيه | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB1102 | اللغة العربيه | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

| مخطط مهارات المنهج | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| يرجى وضع اشارة في المربعات المقابلة لمخرجات التعلم الفردية من البرنامج الخاضعة للتقييم | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | مخرجات التعلم المطلوبة من البرنامج | | | | | | | | | | | | | | | | | | | |
| السنة / المستوى | رمز المقرر | اسم المقرر | اساسي ام اختياري | المعرفة والفهم | | | | المهارات الخاصة بالموضوع | | | | مهارات التفكير | | | | المهارات العامة والمنقولة ( أو) المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي | | | |
| | | | | أ1 | أ2 | أ3 | أ4 | ب1 | ب2 | ب3 | ب4 | ج1 | ج2 | ج3 | ج4 | د1 | د2 | د3 | د4 |
| المرحلة الاولى (الكورس الثاني) | UOBAB0603026 | اللغة الانكليزية | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603021 | كيمياء التحليل الحجمي | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603022 | اللاعضوية-2 | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603023 | الرياضيات | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603024 | الفيزياء | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603025 | برمجة الحاسوب | اساسي | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | |
|---|---|---|---|
| **Module Title** | COMPUTERS PROGRAM | **Module Delivery** | |
| **Module Type** | B | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBAB0603025 | | |
| **ECTS Credits** | 4.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | **HazimYahya** | **e-mail** | |
| **Module Leader's Acad. Title** | Prof. | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| Relation with Other Modules<br>العلاقة مع المواد الدراسية الأخرى | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents<br>أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | Teaching the student to be familiar with the basic rules for dealing with and managing a computer to help him complete projects<br>Printing matters, preparing statistics and graphs, creating presentations and designing engineering plans<br>And others, and the emergence of the Internet as a means of communication available to everyone, it has become very necessary for students to learn to use<br>Computer due to the role of the Internet in many fields, including education, scientific research, trade and marketing |
| **Module Learning Outcomes**<br><br>مخرجات التعلم للمادة الدراسية | 1. The student's understanding of the material<br>2. The ability to analyze and apply what you have learned practically on the calculator<br>3. The evaluation should be done by presenting the material to the students in the laboratory and then applying it |
| **Indicative Contents**<br>المحتويات الإرشادية | The theoretical method and explanation is by presenting the material on the Point Power program in the form of diagrams and pictures<br>This is to attract the student's attention and help him not feel bored. The practical method is to apply what has been presented<br>On the calculator and conduct daily and monthly exams. |

| Learning and Teaching Strategies<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | |

| Student Workload (SWL)<br>الحمل الدراسي للطالب | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |

| | | | |
|---|---|---|---|
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | Phases of the computer course<br>And its generations and data<br>And information |
| **Week 2** | **Computer features**<br>**And areas of its use**<br>**And its components** |
| **Week 3** | Types of computers<br>And its classification |
| **Week 4** | Computer components and parts<br>Physical input devices<br>And the output |
| **Week 5** | Computer box and software entity |
| **Week 6** | Preparation systems and personal computers |
| **Week 7** | first exam |

| | |
|---|---|
| **Week 8** | Computer platform and factors<br>Which should be considered when purchasing<br>the computer |
| **Week 9** | Main features of a personal computer |
| **Week 10** | viruses<br>the computer |
| **Week 11** | Damage resulting from<br>Viruses |
| **Week 12** | • The most important steps<br>• Viruses-<br>• Necessary to protect against hacking<br>• |
| **Week 13** | • Virus components<br>• Computer damage<br>• And its types<br>• |
| **Week 14** | • Second Exam. |
| **Week 15** | • Sources of hacking and risks |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | **لايوجد عملي في هذه الماده** |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

## Learning and Teaching Resources

**مصادر التعلم والتدريس**

[1] Mars climate orbiter. http://mars.jpl.nasa.gov/msp98/orbiter/, 1999. [Online; accessed 17-March-2015].

| [2] Moth in the machine: Debugging the origins of ‘bug’. Computer World Magazine, September 2011. [3] errno.h: system error numbers - base definitions reference. http://pubs.opengroup.org/onlinepubs/9699919799/basedefs/errno.h.html, 2013. [Online; accessed 13-September-2015]. | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| **GRADING SCHEME**<br>**مخطط الدرجات** | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | |
|---|---|---|---|
| **Module Title** | MATHEMATICS I | **Module Delivery** | |
| **Module Type** | S | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBAB0603023 | | |
| **ECTS Credits** | 4.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |

| | | | |
|---|---|---|---|
| **Module Leader** | **Zyiad Khalaf** | **e-mail** | |
| **Module Leader's Acad. Title** | | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | 1-To know the cardinal factor, homology, and Asian functions.<br>2- Learn how to calculate limits.<br>3- Be able to perform differentiation.<br>4- Distinguish between partial differentiation and ordinary differentiation.<br>5- Learn about the Cauchy-Riemann equations.<br>6- Learn how to integrate.<br>7- Learn about Integration methods.<br>8- Can implement the multiplier.<br>9- Distinguish between partial integration and arbitrary integration. | | |
| **Module Learning Outcomes**<br>**مخرجات التعلم للمادة الدراسية** | 4. Functions in a real variable - objectives - continuity - differentiation - integration. | | |
| **Indicative Contents**<br>**المحتويات الإرشادية** | Learn how to integrate.<br>Learn about Integration methods.<br>Can implement the multiplier.<br>Distinguish between partial integration and arbitrary integration. | | |
| **Learning and Teaching Strategies**<br>**استراتيجيات التعلم والتعليم** | | | |
| **Strategies** | | | |

| Student Workload (SWL)<br>الحمل الدراسي للطالب | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | Real numbers |
| **Week 2** | Functions in a real variable |
| **Week 3** | Trigonometric functions |
| **Week 4** | Logarithmic functions |
| **Week 5** | Exponential functions |
| **Week 6** | The ends of real functions |
| **Week 7** | first exam |
| **Week 8** | Objectives of trigonometric functions |

| | |
|---|---|
| **Week 9** | Goals at infinity |
| **Week 10** | Exercise solutions |
| **Week 11** | Continuity |
| **Week 12** | Definition of derivation<br>• . |
| **Week 13** | Derivation of real functions<br>• |
| **Week 14** | • Second Exam. |
| **Week 15** | Derivation of trigonometric functions<br>• Derivation of logarithmic and exponential functions |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | **لايوجد عملي في هذه الماده** |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

| **Learning and Teaching Resources**<br>**مصادر التعلم والتدريس**<br>**Anton howard."calculus".J on wiley and sons.Inc.4th edition.1992** | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C** - Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D** - Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

**ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي**

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | |
|---|---|---|---|
| **Module Title** | LABORTARY SAFTY | **Module Delivery** | |
| **Module Type** | S | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBAB0603014 | | |
| **ECTS Credits** | 5.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | **Mohammed Hamed Saaed** | **e-mail** | |
| **Module Leader's Acad. Title** | Prof. | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

## Relation with Other Modules
## العلاقة مع المواد الدراسية الأخرى

| | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

## Module Aims, Learning Outcomes and Indicative Contents
## أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

| | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | The ignorance of the chemical safety principles lead to expose the laboratory workers and students to great dangerous situations and in some cases lead to death.<br>Knowledge of the applications of best practices for handling chemicals materials will minimize risks, whether to individuals, facilities or community. Chemical and biological safety involves understanding the physical, chemical and toxicological hazards of chemicals. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 5. It is well known that analytical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>6. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>7. Students can handle the chemicals with good experience.<br>8. Students can develop their thoughts to create some projects that are useful in the field. |
| **Indicative Contents**<br>المحتويات الإرشادية | 1. Safety for university teaching staff, coworkers and students.<br>2. Protection of university facilities, during study and workplace in future.<br>3. Protection of the society and the environment. |

## Learning and Teaching Strategies
## استراتيجيات التعلم والتعليم

| | |
|---|---|
| **Strategies** | |

## Student Workload (SWL)
## الحمل الدراسي للطالب

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)** | 150 | | |

| | |
|---|---|
| الحمل الدراسي الكلي للطالب خلال الفصل | |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| Formative assessment | Quizzes | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | Assignments | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | Projects / Lab. | 1 | 10% (10) | Continuous | |
| | Report | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| Summative assessment | Midterm Exam | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | Final Exam | 2hr | 50% (50) | 16 | All |
| Total assessment | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | Material Covered |
|---|---|
| Week 1 | 1- Introduction and Definitions<br>2- Roles and responsibilities<br>2-1-Institutional chemical safety Committee,<br>2-2-Principal Investigators,<br>2-3-Laboratory workers,<br>2-4-Occupational Health Program,<br>2-5-Office of Environmental Health and Safety, and the chemical l Safety Officer |
| Week 2 | 3. WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM<br>3.1 Material Safety Data Sheets .<br>3.2 Understanding hazard warning information<br>3.3 Toxicological properties:<br>3.3.1 Flash point .<br>3.3.2 Auto ignition temperature .<br>3.3.3 Flammable limits |
| Week 3 | 4. GENERAL CHEMICAL SAFETY<br>4.1 Good Work Practices/General Safety .<br>4.2 Personal Hygiene |
| Week 4 | 5. PERSONAL PROTECTIVE EQUIPMENT<br>5.1 Eye and face protection .<br>5.2 Hand protection .<br>5.2.1 Selection of Gloves for Work with Chemicals .<br>5.2.2 Use and Care of Gloves .<br>5.3 Body Protection – Protective clothing.<br>5.4 Respiratory Protection |

| | |
|---|---|
| | 6. EMERGENCY PROCEDURES<br>6.1 Equipment .<br>6.2 Chemical Related Emergency Procedures .<br>6.2.1 Chemical Contact .<br>6.2.2 Poisoning .<br>6.2.3 Power failure .<br>6.2.4 Domestic Water Interruption .<br>6.2.5 Chemical Spills |
| **Week 5** | CHEMICAL SPILL PREVENTION AND PREPAREDNESS<br>7.1 Spill Kits .<br>7.2 Spill Classification .<br>7.3 Spill Response |
| **Week 6** | 8. SPECIFIC CHEMICAL HAZARDS<br>8.1 Flammables .<br>8.2 Oxidizers .<br>8.3 Corrosives .<br>8.4 Highly Reactive Materials .<br>8.5 Cryogenic Materials.<br>8.6 Designated Substances .<br>8.7 Other Toxic Materials **.** |
| | 9- Laboratory ventilation and containment for chemical safety<br>- Laboratory chemical ("fume") hood |
| **Week 7** | first exam |
| **Week 8** | 10. CHEMICAL HANDLING AND STORAGE<br>10.1 Chemical Inventory .<br>10.2 General Transport Practices.<br>10.3 General Storage Practices .<br>10.4 Storage of Flammables and Combustibles .<br>10.4.1 Storage Rooms for Flammable and Combustible Liquids .<br>10.4.2 Approved Flammable Storage Cabinets .<br>10.5 Chemical Segregation .<br>10.6 Storage of Gas Cylinders .<br>10.7 Containment |
| **Week 9** | 11. HAZARDOUS WASTE MANAGEMENT<br>11.1 Minimization of Hazardous Waste<br>11.2 Packaging and Labelling Requirements .<br>11.3 Chemical Waste .<br>11.3.1 Unknown Waste.<br>11.3.2 Explosive Waste . |
| **Week 10** | 12-Radiation Safety<br>- Basic concepts and definitions<br>- Types of ionizing radiation<br>- Sources of radiation<br>- Contamination and exposure<br>- Chemical effects of radiation<br>- Principles of exposure control |

| | |
|---|---|
| | - Labelling |
| **Week 11** | 12-Radiation Safety<br>- Basic concepts and definitions<br>- Types of ionizing radiation<br>- Sources of radiation<br>- Contamination and exposure<br>- Chemical effects of radiation<br>- |
| **Week 12** | • Contamination<br>• Radiation safety instrumentation |
| **Week 13** | Chemical ethics<br>• What is ethics?<br>• Why ethics?<br>• Applying chemical ethics in research<br>• |
| **Week 14** | • Second Exam. |
| **Week 15** | • Principles of exposure control<br>• Labelling |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | **لايوجد عملي في هذه الماده** |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

| **Learning and Teaching Resources**<br>**مصادر التعلم والتدريس** | | |
|---|---|---|
| | **Text** | **Available in the** |

| | | Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C** - Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D** - Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | ARABIC LANGUAGE | | | **Module Delivery** | |
| **Module Type** | S | | | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBABB2 | | | | |
| **ECTS Credits** | 4.00 | | | | |
| **SWL (hr/sem)** | 150 | | | | |
| **Module Level** | | | **Semester of Delivery** | | |
| **Administering Department** | | | **College** | | |
| **Module Leader** | **Amina Ameer** | | **e-mail** | | |
| **Module Leader's Acad. Title** | | | **Module Leader's Qualification** | | Ph.D. |
| **Module Tutor** | | | **e-mail** | None | |
| **Peer Reviewer Name** | | | **e-mail** | | |
| **Review Committee Approval** | | | **Version Number** | 1.0 | |

| Relation with Other Modules<br>العلاقة مع المواد الدراسية الأخرى | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية | | | |
| **Module Aims**<br>أهداف المادة الدراسية | 1- Introducing students to the concept of the Arabic language<br>2 - Evaluation of speech in terms of recognizing the exits of letters<br>3- Inculcating the student's interest in the Arabic language and going beyond the practical dialect<br>4- Developing the student's spelling and handwriting ability and skill so that he can write correctly in all aspects<br>5-Helping the student understand complex structures and ambiguous methods<br>6 - Developing the student's literary and creative abilities so that he can express himself correctly<br>7_ Accustoming students to the method of logical thinking in presentation and analysis, especially in exercises on correct reading.<br>9_Course outcomes and methods of generalization, learning and evaluation | | |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 9. The student's understanding of the material<br>10. The ability to analyze and apply what you have learned practically on the Arabic<br>11. The evaluation should be done by presenting the material to the students in the laboratory and then applying it | | |
| **Indicative Contents**<br>المحتويات الإرشادية | The theoretical method and explanation is by presenting the material on the Point Power program in the form of diagrams and pictures<br>This is to attract the student's attention and help him not feel bored. The practical method is to apply what has been presented<br>On the calculator and conduct daily and monthly exams. | | |
| **Learning and Teaching Strategies**<br>استراتيجيات التعلم والتعليم | | | |
| **Strategies** | | | |

| Student Workload (SWL)<br>الحمل الدراسي للطالب | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | The concept of Arabic language |
| **Week 2** | Characteristics of the Arabic language |
| **Week 3** | Factors of richness in language<br>Arabic |
| **Week 4** | Levels of seductive expression |
| **Week 5** | Sections of speech<br>(Noun, verb, and letter.) |
| **Week 6** | Pronouns |
| **Week 7** | Interrogative nouns |
| **Week 8** | Demonstrative names |

| | |
|---|---|
| **Week 9** | Relative nouns |
| **Week 10** | First Exam |
| **Week 11** | Verbs – past tense |
| **Week 12** | The present tense |
| **Week 13** | Letter |
| **Week 14** | Syntactic signs |
| **Week 15** | • Second Exam |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | **لايوجد عملي في هذه الماده** |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

## Learning and Teaching Resources
## مصادر التعلم والتدريس


. عبد اللطيف الصوفي ، اللغة ومعاجمها في المكتبة العربية ، الطبعة الأولى 1986 ، طلسدار للدراسات والترجمة والنشر ، دمشق

. عز الدين إسماعيل ، المصادر الأدبية واللغوية في التراث العربي ، مكتبة غريب ، الفجالة ، مصر

محمد عجاج الخطيب ، لمحات في المكتبة والبحث والمصادر ، الطبعة الرابعة عشر 1413هـ - 1993م، مؤسسة الرسالة بيروت.

محمد ماهر ، المصادر العربية والمعربة ، الطبعة السادسة 1407، هـ - 1987م ، مؤسسة الرسالة ، بيروت.


| | Text | Available in the |
|---|---|---|

| | | Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | PHYSICS SCIENCE | | | **Module Delivery** | |
| **Module Type** | S | | | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBAB0603024 | | | | |
| **ECTS Credits** | 4.00 | | | | |
| **SWL (hr/sem)** | 150 | | | | |
| **Module Level** | | | **Semester of Delivery** | | |
| **Administering Department** | | | **College** | | |
| **Module Leader** | **Ziyad Khalaf** | | **e-mail** | | |
| **Module Leader's Acad. Title** | | | **Module Leader's Qualification** | | Ph.D. |
| **Module Tutor** | | | **e-mail** | None | |
| **Peer Reviewer Name** | | | **e-mail** | | |
| **Review Committee Approval** | | | **Version Number** | 1.0 | |

| Relation with Other Modules<br>العلاقة مع المواد الدراسية الأخرى | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents<br>أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | Physics is one of the ancient sciences that man has begun to understand and understand all its phenomena.<br>Optics, electricity, mechanics, and heat are all focused on his daily applications, so there is nothing surprising in that. He sees the sun, the moon, and surrounding things, and sees his image in the water, so he tries to understand that, and with development: the laws of reflection and refraction provided a solution to all his questions, and electricity and heat known at this time are only results of causes. These are questions created by man and whose foundations were laid by a group of scientists in the service of humanity |
| **Module Learning Outcomes**<br><br>مخرجات التعلم للمادة الدراسية | After completing the course, the student will be able to:<br>The course aims to introduce the student to waves, light, reflection, and refraction<br>2- Introducing students to the eye, the observer, defects in lenses and optical devices, interference, and diffraction<br>3- Explaining the phenomenon of spectra, polarization, the speed of light and its nature<br>4-The concept of electricity, charge and matter, Coulomb's law<br>5-Magnetism and magnetic properties, induction, lines of induction, and magnetic flux |

| | |
|---|---|
| | |
| **Indicative Contents**<br>**المحتويات الإرشادية** | Physics is one of the ancient sciences that man has begun to understand and understand all its phenomena.<br>Optics, electricity, mechanics, and heat are all focused on his daily applications, so there is nothing surprising in that. He sees the sun, the moon, and surrounding things |
| **Learning and Teaching Strategies**<br>**استراتيجيات التعلم والتعليم** | |
| **Strategies** | |

| **Student Workload (SWL)**<br>**الحمل الدراسي للطالب** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>**الحمل الدراسي المنتظم للطالب خلال الفصل** | 64 | **Structured SWL (h/w)**<br>**الحمل الدراسي المنتظم للطالب أسبوعيا** | 64 |
| **Unstructured SWL (h/sem)**<br>**الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 68 | **Unstructured SWL (h/w)**<br>**الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 68 |
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

| **Module Evaluation**<br>**تقييم المادة الدراسية** | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus)<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | Waves and their nature |
| **Week 2** | Light and its properties |
| **Week 3** | Lenses and their applications |
| **Week 4** | Spectra and polarized light |
| **Week 5** | General discussion and review |
| **Week 6** | Electricity and Coulomb's law |
| **Week 7** | first exam |
| **Week 8** | Electric field and Gauss's law |
| **Week 9** | Magnetism and magnetic properties |
| **Week 10** | Magnetic force, electric current |
| **Week 11** | Faraday's law and Lenz's law<br>. |
| **Week 12** | Ampere's law and some of its applications |
| **Week 13** | Discussion and review |
| **Week 14** | • Second Exam. |
| **Week 15** | • Physics of semiconductor materials |

| Delivery Plan (Weekly Lab. Syllabus)<br>المنهاج الاسبوعي للمختبر | |
|---|---|
| | **Material Covered** |
| **Week 1** | **Surface tension** |
| **Week 2** | **Ohm's law using a dilatant** |
| **Week 3** | **Find the frequency of a tuning fork** |
| **Week 4** | **Finding the refractive index of a liquid using a lens** |

| | |
|---|---|
| **Week 5** | **Compound pendulum** |
| **Week 6** | **Resonance in series alternating current circuits** |
| **Week 7** | **Helical spring** |

## Learning and Teaching Resources

مصادر التعلم والتدريس

1- كرجيه،امجد عبد الرزاق وآخرون.الفيزياء العامة،دار الكتب للطباعة والنشر،جامعة الموصل،1988

2- الحسون عباس محمد وآخرون، البصريات، المكتبة الوطنية،جامعة بغداد 1980

3- مظفر أنور النعمة، فيزياء الالكترونيات ، كلية الهندسة،جامعة الموصل،2001 م .

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
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| | **D** - Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | |
|---|---|---|---|
| **Module Title** | INORGANIC1 | **Module Delivery** | |
| **Module Type** | C | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBAB0603012 | | |
| **ECTS Credits** | 6.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |

| | | | |
|---|---|---|---|
| **Module Leader** | **Ali Talib Bader** | **e-mail** | |
| **Module Leader's Acad. Title** | Asst. Prof. | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | Inorganic chemistry is the study of the chemical elements and the reactions which these elements undergo. With the exclusion of carbon, there exist some 90 naturally-occurring chemical elements. The broad classification of these elements, first in the Periodic Table, then in special families, groups, and periods, form the basis of inorganic chemistry. The relationship between chemical elements and their compounds is based primarily on atomic structures and electronic configurations. Chemical bonding of different types are found in molecular and ionic compounds, and these bonding types are discussed in terms of the latest theories and experimental results. Topics such as coordination compounds, boron hydrides, metal cluster compounds, metal carbonyls, solid state structures, and the geometry of finite molecular species are presented. The correlation of physical properties with structure, composition, and electronic states of the metal ionics are developed, based on theoretical considerations. | | |
| **Module Learning Outcomes**<br><br>**مخرجات التعلم للمادة الدراسية** | 12. It is well known that analytical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>13. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>14. Students can handle the chemicals with good experience.<br>15. Students can develop their thoughts to create some projects that are | | |

| | |
|---|---|
| | useful in the field. |
| **Indicative Contents**<br>**المحتويات الإرشادية** | Inorganic chemistry is the study of the chemical elements and the reactions which these elements undergo. With the exclusion of carbon, there exist some 90 naturally-occurring chemical elements. The broad classification of these elements, first in the Periodic Table, then in special families, groups, and periods, form the basis of inorganic chemistry. |
| **Learning and Teaching Strategies**<br>**استراتيجيات التعلم والتعليم** | |
| **Strategies** | |

| **Student Workload (SWL)**<br>**الحمل الدراسي للطالب** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>**الحمل الدراسي المنتظم للطالب خلال الفصل** | 64 | **Structured SWL (h/w)**<br>**الحمل الدراسي المنتظم للطالب أسبوعيا** | 64 |
| **Unstructured SWL (h/sem)**<br>**الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 68 | **Unstructured SWL (h/w)**<br>**الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 68 |
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

| **Module Evaluation**<br>**تقييم المادة الدراسية** | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)**<br>**المنهاج الاسبوعي النظري** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Atomic Structure, history of quantum theory , photoelectric effect and transition of atomic |

| | |
|---|---|
| **Week 2** | **Bohr theory, Bohr atom and Sommerfeld theory** |
| **Week 3** | Zeeman effect ,rule of wave mechanics |
| **Week 4** | Schrödinger equation |
| **Week 5** | Quantum number |
| **Week 6** | Electron Orbital: Definition, Shells & Shapes |
| **Week 7** | first exam |
| **Week 8** | Electronic structure and periodic ,Shielding effect |
| **Week 9** | Ionic compound ,Born –Harber cycle |
| **Week 10** | Polarizable of ionic compound |
| **Week 11** | Structure of ionic crystals. |
| **Week 12** | • Structure of some ionic and covalent crystals. |
| **Week 13** | • Valance bond theory and molecular theory |
| **Week 14** | • Second Exam. |
| **Week 15** | • VSPER |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | **لايوجد عملي في هذه الماده** |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

## Learning and Teaching Resources

## مصادر التعلم والتدريس

**1- د. نعمان النعيمي "الكيمياء اللاعضوية" الجزء ألاول و الثاني ، مطبعة جامعة بغداد،**

**2- P.J.Durrant " General and inorganic chemistry" , 3rd edition,Dai Nippon Printing Co(H.K) Ltd, 1964.**

**3- P.J.Gillespie and P.L.A.Popelier" Chemical Bonding and Molecular Geometry " ,Oxford university press, 2001.**

| | **Text** | **Available in the** |
|---|---|---|

| | | Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | INORGANIC 2 | | | **Module Delivery** | |
| **Module Type** | C | | | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBAB0603022 | | | | |
| **ECTS Credits** | 6.00 | | | | |
| **SWL (hr/sem)** | 150 | | | | |
| **Module Level** | | | **Semester of Delivery** | | |
| **Administering Department** | | | **College** | | |
| **Module Leader** | **Ali Talib Bader** | | **e-mail** | | |
| **Module Leader's Acad. Title** | Asst. Prof. | | **Module Leader's Qualification** | | Ph.D. |
| **Module Tutor** | | | **e-mail** | None | |
| **Peer Reviewer Name** | | | **e-mail** | | |
| **Review Committee Approval** | | | **Version Number** | 1.0 | |

| Relation with Other Modules<br>العلاقة مع المواد الدراسية الأخرى | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents<br>أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | Inorganic chemistry is the study of the chemical elements and the reactions which these elements undergo. With the exclusion of carbon, there exist some 90 naturally-occurring chemical elements. The broad classification of these elements, first in the Periodic Table, then in special families, groups, and periods, form the basis of inorganic chemistry. The relationship between chemical elements and their compounds is based primarily on atomic structures and electronic configurations. Chemical bonding of different types are found in molecular and ionic compounds, and these bonding types are discussed in terms of the latest theories and experimental results. Topics such as coordination compounds, boron hydrides, metal cluster compounds, metal carbonyls, solid state structures, and the geometry of finite molecular species are presented. The correlation of physical properties with structure, composition, and electronic states of the metal ionics are developed, based on theoretical considerations. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 16. It is well known that analytical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>17. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>18. Students can handle the chemicals with good experience.<br>19. Students can develop their thoughts to create some projects that are useful in the field. |
| **Indicative Contents**<br>المحتويات الإرشادية | Inorganic chemistry is the study of the chemical elements and the reactions which these elements undergo. With the exclusion of carbon, there exist some 90 naturally-occurring chemical elements. The broad classification of these elements, first in the Periodic Table, then in special families, groups, and periods, form the basis of inorganic chemistry. |

| Learning and Teaching Strategies<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | |

| Student Workload (SWL)<br>الحمل الدراسي للطالب | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | Method of repulsion of electronic pairs in the valence layer |
| **Week 2** | Hydrogen, hydrogen bond |
| **Week 3** | Hydration, hydrogen ion, oxime ion |
| **Week 4** | hydrides |
| **Week 5** | Solubility, complex compounds |
| **Week 6** | Boron, boron oxides, borates and hydrides |
| **Week 7** | First Exam |
| **Week 8** | Aluminum compounds, calcium and indium halides |

| | |
|---|---|
| **Week 9** | Divalent carbon compounds, carbides and hydrogen cyanide |
| **Week 10** | Divalent carbides and hydrogen cyanide |
| **Week 11** | Double bonds |
| **Week 12** | Preparation of the rest of the group elements, |
| **Week 13** | Preparation of the silicon halides |
| **Week 14** | Second Exam |
| **Week 15** | Silicone uses |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | **لايوجد عملي في هذه الماده** |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

## Learning and Teaching Resources

**مصادر التعلم والتدريس**

**1- د. نعمان النعيمي "الكيمياء اللاعضوية" الجزء ألاول و الثاني ، مطبعة جامعة بغداد،**

**2- P.J.Durrant " General and inorganic chemistry" , 3rd edition,Dai Nippon Printing Co(H.K) Ltd, 1964.**

**3- P.J.Gillespie and P.L.A.Popelier" Chemical Bonding and Molecular Geometry " ,Oxford university press, 2001.**

| | **Text** | **Available in the Library?** |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

**ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي**

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | |
|---|---|---|---|
| **Module Title** | ENGLISH LANGUAGE | **Module Delivery** | |
| **Module Type** | B | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBAB0603026 | | |
| **ECTS Credits** | 4.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | **Amina Ameer** | **e-mail** | |
| **Module Leader's Acad. Title** | | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| Relation with Other Modules<br>العلاقة مع المواد الدراسية الأخرى |
|---|

| | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

## Module Aims, Learning Outcomes and Indicative Contents
## أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

| | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | 1- Explaining the material in a clear and understandable way for all students.<br>2. Involve students in discussing and solving exercises.<br>3- Explaining the study material using various methods<br>An explanation to develop students' abilities and break boredom in the classroom |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 20. The student's understanding of the material<br>21. The ability to analyze and apply what you have learned practically on the English<br>22. The evaluation should be done by presenting the material to the students in the laboratory and then applying it |
| **Indicative Contents**<br>المحتويات الإرشادية | The theoretical method and explanation is by presenting the material on the Point Power program in the form of diagrams and pictures<br>This is to attract the student's attention and help him not feel bored. The practical method is to apply what has been presented<br>On the calculator and conduct daily and monthly exams. |

## Learning and Teaching Strategies
## استراتيجيات التعلم والتعليم

| | |
|---|---|
| **Strategies** | |

## Student Workload (SWL)
## الحمل الدراسي للطالب

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| Formative assessment | Quizzes | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | Assignments | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | Projects / Lab. | 1 | 10% (10) | Continuous | |
| | Report | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| Summative assessment | Midterm Exam | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | Final Exam | 2hr | 50% (50) | 16 | All |
| Total assessment | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | Material Covered |
|---|---|
| Week 1 | Present simple (I Do) |
| Week 2 | Present continuous and simple 1 |
| Week 3 | Present continuous and simple 2 |
| Week 4 | Past simple (IDid) |
| Week 5 | Past continuous (I was doing) |
| Week 6 | Present perfect 1( have done ) |
| Week 7 | Present perfect 2( I have done) |
| Week 8 | Present perfect continuous (I have been doing) |
| Week 9 | Present perfect continuous and simple |
| Week 10 | First Exam |
| Week 11 | For and since When ..? and how long |
| Week 12 | Present perfect and past 1( I have done and Did ) |
| Week 13 | Past perfect ( I had done ) |
| Week 14 | Past perfect continuous ( I had been doing ) |
| Week 15 | • Second Exam |

## Delivery Plan (Weekly Lab. Syllabus)
## المنهاج الاسبوعي للمختبر

| | Material Covered |
|---|---|
| **Week 1** | لايوجد عملي في هذه الماده |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

## Learning and Teaching Resources

## مصادر التعلم والتدريس

Austin J.D. (2003). The Grammar Translation Method of Language Teaching. London: Longman.
Hell, Gy. (2009). A fordításhelye a rómaioktatásban (és Cicero fordításai). Modern Nyelvoktatás XV. 1-2, 3-12.

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

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| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| **Module Information**<br>**معلومات المادة الدراسية** | | |
|---|---|---|
| **Module Title** | HUMAN AND DEMOCRACY | **Module Delivery** |

| | | | |
|---|---|---|---|
| **Module Type** | B | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBABB3 | | |
| **ECTS Credits** | 2.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | **Kareem Mohmmed** | **e-mail** | |
| **Module Leader's Acad. Title** | | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | |
|---|---|
| **Module Aims**<br>**أهداف المادة الدراسية** | 1 – التعرف على افكار اساسية بخصوص حقوق الانسان وحرياته .<br>2 – تعريف حقوق الانسان وحرياته .<br>3 – التعرف على مصادر حقوق الانسان<br>4 – معرفة بعض ملامح حقوق الانسان في الحضارات القديمه<br>5 – التعرف على حقوق الانسان في حضارة العراق القديم<br>6 – معرفة حقوق الانسان في حضارة مصر الفرعونية<br>7 – معرفة حقوق الانسان في الحضارة اليونانية<br>8 – معرفة حقوق الانسان في الحضارة الرومانية<br>9 – التعرف على المفهوم الاسلامي لمفهوم حقوق الانسات<br>10 – معرفة الحقوق الفردية<br>11 – معرفة الحقوق المشتركة (فئوية)<br>12 – التعرف على الحقوق الجماعه<br>13 – معرفة الاهتمام الدولي المعاصر لحقوق الانسان وحرياته<br>14 – التعرف على سمات حقوق الانسان وحرياته |

| | |
|---|---|
| | 15 – سمات حقوق الانسان في الحضارات القديمة |
| **Module Learning Outcomes**<br><br>**مخرجات التعلم للمادة الدراسية** | 23. It is well known that analytical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>24. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>25. Students can handle the chemicals with good experience.<br>26. Students can develop their thoughts to create some projects that are useful in the field. |
| **Indicative Contents**<br>**المحتويات الإرشادية** | ترتبط قضية حقوق الانسان وحرياته الاساسية وبشكل جذري ومباشر بقضية وجودنا وقد نشطت جميع العلوم وسخرت نظرياتها ومناهجها للنظر في ماهية الانسان حقوق النسان ثمرة من ثمار العلاقة بين السلطه والفرد ولذا فان مدار البحث فيها يظل قائما حيثما وجد الانسان ووجدت السلطه . |
| **Learning and Teaching Strategies**<br>**استراتيجيات التعلم والتعليم** | |
| **Strategies** | |

| **Student Workload (SWL)**<br>**الحمل الدراسي للطالب** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>**الحمل الدراسي المنتظم للطالب خلال الفصل** | 64 | **Structured SWL (h/w)**<br>**الحمل الدراسي المنتظم للطالب أسبوعيا** | 64 |
| **Unstructured SWL (h/sem)**<br>**الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 68 | **Unstructured SWL (h/w)**<br>**الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 68 |
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

| **Module Evaluation**<br>**تقييم المادة الدراسية** | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus)<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | افكار اساسية بخصوص حقوق الانسان وحرياته |
| **Week 2** | حقوق الانسان مادة للفكر السياسي والقانون |
| **Week 3** | الدمج بين حقوق الانسان وحرياته |
| **Week 4** | تعريف حقوق الانسان وحرياته |
| **Week 5** | الفصل بين حقوق الانسان وحرياته |
| **Week 6** | مصادر حقوق الانسان وحرياته الاساسية |
| **Week 7** | المدارس الفكرية والسياسية والقانونية لحقوق الانسان |
| **Week 8** | المصادر الوطنية لحقوق الانسان |
| **Week 9** | المصادر العالمية لحقوق الانسان |
| **Week 10** | حقوق الإنسان في الدساتير العراقية بين النظرية والواقع |
| **Week 11** | العلاقة بين حقوق الإنسان والحريات العامة |
| **Week 12** | في الإعلان العالمي للحقوق الإنسان والمواثيق الدولية |
| **Week 13** | ملامح حقوق الإنسان في ظل الملكية المركزية |
| **Week 14** | اشكال واصناف حقوق الانسان والترابط بينها |
| **Week 15** | حقوق الانسان الفردية وحقوق الانسان الجماعية |

| Delivery Plan (Weekly Lab. Syllabus)<br>المنهاج الاسبوعي للمختبر | |
|---|---|
| | **Material Covered** |
| **Week 1** | لايوجد مختبر عملي لهذه الماده |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

| Learning and Teaching Resources<br>مصادر التعلم والتدريس<br>- د.احمد جمال ظاهر ، حقوق الانسان ،عمان ، مركز النهضة 1988<br>د.نعيم عطية ،النظرية العامة للحريات الفردية ،القاهرة ،الدار القومية 1965 -2<br>د.عزة سيد البرعي ، حماية حقوق الانسان في ظل التنظيم الدولي ،القاهرة ،مطبعة العاصمة 1985 -3 | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C** - Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D** - Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| **Module Information**<br>**معلومات المادة الدراسية** | | | |
|---|---|---|---|
| **Module Title** | CYTOLOGY | **Module Delivery** | |
| **Module Type** | S | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBAB0603012 | | |
| **ECTS Credits** | 5.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |

| | | | |
|---|---|---|---|
| **Module Leader** | **Hassanin Kahlil** | **e-mail** | |
| **Module Leader's Acad. Title** | Prof. | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | This course aims to introduce the cell as the primary unit in building a living organism and give the student information<br>And the basic knowledge about the cell structure that enables one to know and understand the function and basic structure of the unit.<br>Cellular cells and their various contents, as well as knowledge of the various vital activities that take place at the level of each cell<br>Bite. This course also aims to enable the student to conduct the necessary laboratory experiments to consolidate concepts<br>the theory | | |
| **Module Learning Outcomes**<br>**مخرجات التعلم للمادة الدراسية** | After completing the course, the student will be able to:<br>1 - Reviews the basic scientific principles and concepts in cell science and the basic structure of any cell<br>It clearly explains the differences between prokaryotic and eukaryotic cells, as well as the differences between cellular organelles<br>Structurally and functionally.<br>2 - Connects the various scientific information and knowledge related to | | |

| | |
|---|---|
| | cell science into a whole that reflects a complete understanding and familiarity with the whole body.<br>With this knowledge.<br>3 - Explains the various biological processes of the various organisms and links them to their structure and biochemical activity.<br>And the physiology of the cell and the organism as a whole. |
| **Indicative Contents**<br>**المحتويات الإرشادية** | This course aims to introduce the cell as the primary unit in building a living organism and give the student information<br>And the basic knowledge about the cell structure that enables one to know and understand the function and basic structure of the unit |
| **Learning and Teaching Strategies**<br>**استراتيجيات التعلم والتعليم** | |
| **Strategies** | |

| **Student Workload (SWL)**<br>**الحمل الدراسي للطالب** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>**الحمل الدراسي المنتظم للطالب خلال الفصل** | 64 | **Structured SWL (h/w)**<br>**الحمل الدراسي المنتظم للطالب أسبوعيا** | 64 |
| **Unstructured SWL (h/sem)**<br>**الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 68 | **Unstructured SWL (h/w)**<br>**الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 68 |
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

| **Module Evaluation**<br>**تقييم المادة الدراسية** | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |

| | | | | | |
|---|---|---|---|---|---|
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)**<br>**المنهاج الاسبوعي النظري** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Reviews principles and concepts Basic science in cell science The basic structure of any cell |
| **Week 2** | **Clearly explains the differences between cells**<br>**Prokaryotic and eukaryotic cells**<br>**The nucleus as well as the differences between the organelles**<br>**Cellular structure and function** |
| **Week 3** | History of science And its importance nd its connection<br>In other sciences And cell theory |
| **Week 4** | Differences basic between Types of cells |
| **Week 5** | Molecules biological in<br>cell, Its characteristics<br>And its functions |
| **Week 6** | Membranes Cellular And the wall<br>Cellular |
| **Week 7** | first exam |
| **Week 8** | Organelles<br>Cell, its structure<br>And its function |
| **Week 9** | The general structure, function and effects of the nucleus<br>In different cells |
| **Week 10** | Types of nucleic acids and their differences<br>Structural and functional among them. |

| | |
|---|---|
| **Week 11** | The nature of genetic material and its genetic structure. |
| **Week 12** | • the various nuclear activities are multiplying<br>• And copy and paste it.<br>• |
| **Week 13** | • Introduction to the structural structures of the prokaryotic cell<br>• And eukaryotes<br>• |
| **Week 14** | • Second Exam. |
| **Week 15** | • Models of plant cells that closely illustrate how the cell structure matches<br>• Its function is explained through segments<br>• |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | **لايوجد عملي في هذه الماده** |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

| **Learning and Teaching Resources**<br>**مصادر التعلم والتدريس**<br>***Cell Biology***. S.C.RASTOGI, New Age International, 2002و | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| **GRADING SCHEME** |
|---|

| مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C** - Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D** - Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

**ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي**

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | |
|---|---|---|---|
| **Module Title** | QUALITATIVE ANALYSIS CHEMISTRY | **Module Delivery** | |
| **Module Type** | C | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBAB0603021 | | |
| **ECTS Credits** | 8.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | **Fouad Fadhil Al-Qaim** | **e-mail** | |
| **Module Leader's Acad. Title** | Prof. | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

## Relation with Other Modules
## العلاقة مع المواد الدراسية الأخرى

| | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

## Module Aims, Learning Outcomes and Indicative Contents
## أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

| | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | First objective of this course is to provide enough information regarding analytical chemistry in term of preparation and instrumental analysis.<br>Second objective is to develop an ability to distinguish between the accuracy and precision of experimental data and to show how to solve some challenges during the lab work.<br>Third objective is to definition the developed and classical analysis methods.<br>Fourth objective is to enable the students in preparation different solutions in different expression and how to related among them.<br>Fifth objective is teaching the students the laboratory skills that will give students confidence in their ability to obtain high-quality analytical data. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 27. It is well known that analytical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>28. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>29. Students can handle the chemicals with good experience.<br>30. Students can develop their thoughts to create some projects that are useful in the field. |
| **Indicative Contents**<br>المحتويات الإرشادية | Analytical chemistry deals with methods for determining the chemical composition of samples of matter. A **qualitative method** yields information about the identity of atomic or molecular species or the functional groups in the sample. A **quantitative method** |

## Learning and Teaching Strategies
## استراتيجيات التعلم والتعليم

| | |
|---|---|
| **Strategies** | |

## Student Workload (SWL)
## الحمل الدراسي للطالب

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |

| | |
|---|---|
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | Introduction to analytical chemistry, classification, and historical overview |
| **Week 2** | - Equilibrium in chemical systems, including the equilibrium state and the equilibrium constant |
| **Week 3** | Equilibrium calculations, the effect of changing concentration on equilibrium |
| **Week 4** | - Solutions, including the chemical composition of solutions, saturated and supersaturated solutions, solubility, |
| **Week 5** | Methods of expressing special concentrations With solutions, chemical calculations |
| **Week 6** | - Ionic balance, acid function (pH), ionization constant for weak acids and weak bases |
| **Week 7** | Ionic tension, effectiveness and effectiveness constant |
| **Week 8** | Uses and calculations of the effectiveness constant.<br>first test# |
| **Week 9** | The idea of the solubility product constant |

| | |
|---|---|
| **Week 10** | Its uses in sedimentation and separation |
| **Week 11** | Second Examination |
| **Week 12** | The idea of ionization: its uses and calculations |
| **Week 13** | Electrolytic solutions, modern theory of acids and bases<br>. |
| **Week 14** | Buffer solutions, their types, capacity, and use of the pH of buffer solutions |
| **Week 15** | - Hydrolysis of salts, calculations of the pH of aqueous solutions and the degree of decomposition<br>Complex ions and their ionization properties and uses in analytical chemistry |
| **Week 16** | |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Principles of precipitation of group II cations<br>Separation and identification of group IIa cations in the mixture<br>Cu2+, Cd2+, Pb2+, Hg2+. |
| **Week 2** | Separation and identification of Group II B cations in the mixture<br>Cu2+, Cd2+, Pb2+, Hg2+, Bi3+. Questions and exercises |
| **Week 3** | Principles of precipitation of group III cations<br>Separation and identification of group IIIa cations in the mixture<br>Al3+, Cr3+, Mn2+, Fe2 |
| **Week 4** | Separation and identification of group III B cations in the mixture<br>Ni2+, Co2+, Mn2+, Zn2+. Questions and exercises. |
| **Week 5** | Separation and identification of Group IV cations (alkaline earth elements), Ba2+, Ca2+, Sr2+, questions and exercises |
| **Week 6** | Separating and identifying group five cations (alkaline elements), Mg2+, K+, Na+, NH4+, questions and exercises |

| | |
|---|---|
| | . |
| **Week 7** | Exam |

## Learning and Teaching Resources

## مصادر التعلم والتدريس

1Vogel's Textbook of Quantitative Chemical Analysis, John Wiley & Sons fifth edition 1989.

2Douglas A. Skoog and Donald M.West, Fundamentals of Analytical Chemistry, fourth edition,1982.

3Christian G. D. “Analytical Chemistry” sixth edition, John Wiley & Sons,2003.

4Harris, D.C. Quantitative Chemical Analysis, seventh edition, W.H. Freeman, New York, 2007.

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C** - Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D** - Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| **Module Information**<br>**معلومات المادة الدراسية** | | |
|---|---|---|
| **Module Title** | VOLUMETRIC ANALYSIS CHEMISTRY | **Module Delivery** |
| **Module Type** | C | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical** |
| **Module Code** | UOBAB0603011 | |
| **ECTS Credits** | 8.00 | |

| | | | |
|---|---|---|---|
| **SWL (hr/sem)** | 150 | **Seminar** | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | **Fouad Fadhil Al-Qaim** | **e-mail** | |
| **Module Leader's Acad. Title** | Prof. | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | First objective of this course is to provide enough information regarding analytical chemistry in term of preparation and instrumental analysis.<br>Second objective is to develop an ability to distinguish between the accuracy and precision of experimental data and to show how to solve some challenges during the lab work.<br>Third objective is to definition the developed and classical analysis methods.<br>Fourth objective is to enable the students in preparation different solutions in different expression and how to related among them.<br>Fifth objective is teaching the students the laboratory skills that will give students confidence in their ability to obtain high-quality analytical data. | | |
| **Module Learning Outcomes**<br>**مخرجات التعلم للمادة الدراسية** | 31. It is well known that analytical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>32. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>33. Students can handle the chemicals with good experience.<br>34. Students can develop their thoughts to create some projects that are | | |

| | |
|---|---|
| | useful in the field. |
| **Indicative Contents**<br>**المحتويات الإرشادية** | Analytical chemistry deals with methods for determining the chemical composition of samples of matter. A **qualitative method** yields information about the identity of atomic or molecular species or the functional groups in the sample. A **quantitative method** |
| **Learning and Teaching Strategies**<br>**استراتيجيات التعلم والتعليم** | |
| **Strategies** | |

| **Student Workload (SWL)**<br>**الحمل الدراسي للطالب** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>**الحمل الدراسي المنتظم للطالب خلال الفصل** | 64 | **Structured SWL (h/w)**<br>**الحمل الدراسي المنتظم للطالب أسبوعيا** | 64 |
| **Unstructured SWL (h/sem)**<br>**الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 68 | **Unstructured SWL (h/w)**<br>**الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 68 |
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

| **Module Evaluation**<br>**تقييم المادة الدراسية** | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)**<br>**المنهاج الاسبوعي النظري** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Principles of analytical chemistry |

| | |
|---|---|
| **Week 2** | evaluation of analytical data |
| **Week 3** | elementary concepts |
| **Week 4** | solubility and concentration |
| **Week 5** | molarity *vs* normality |
| **Week 6** | Density *vs* specific gravity |
| **Week 7** | trace concentration (ppb, ppm and ppt) |
| **Week 8** | percentage concentration |
| **Week 9** | First examination |
| **Week 10** | stoichiometric relationships |
| **Week 11** | strong electrolytes *vs* weak electrolytes |
| **Week 12** | types of salts |
| **Week 13** | buffer solution |
| **Week 14** | slightly soluble salts I |
| **Week 15** | slightly soluble salts II |
| **Week 16** | Second Examination |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Definition of some laboratory equipment and chemical safety in the lab |
| **Week 2** | Preparation and standardization of hydrochloric acid against borax or sodium carbonate |
| **Week 3** | Preparation and standardization of hydrochloric acid against sodium hydroxide |
| **Week 4** | Preparation and standardization of sodium hydroxide and sodium carbonate against hydrochloric acid |
| **Week 5** | Preparation and determination of acetic acid against sodium hydroxide |
| **Week 6** | Preparation and determination of chloride ion by Mohr's method titration. |
| **Week 7** | Determination of water hardness. |

## Learning and Teaching Resources
## مصادر التعلم والتدريس

.1Vogel's Textbook of Quantitative Chemical Analysis, John Wiley & Sons fifth edition 1989

.2Douglas A. Skoog and Donald M.West, Fundamentals of Analytical Chemistry, fourth edition,1982

.3Christian G. D. "Analytical Chemistry" sixth edition, John Wiley & Sons,2003

.4Harris, D.C. Quantitative Chemical Analysis, seventh edition, W.H. Freeman, New York, 2007

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

**ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي**

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Physical Chemistry-2** | | **Module Delivery** | | |
| **Module Type** | C | | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | | |
| **Module Code** | | | | | |
| **ECTS Credits** | 4.00 | | | | |
| **SWL (hr/sem)** | 150 | | | | |
| **Module Level** | | | **Semester of Delivery** | | |
| **Administering Department** | | | **College** | | |
| **Module Leader** | **Hazim Yahya** | | **e-mail** | | |
| **Module Leader's Acad. Title** | Prof. | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | | | **e-mail** | None | |
| **Peer Reviewer Name** | | | **e-mail** | | |
| **Review Committee Approval** | | | **Version Number** | 1.0 | |

| Relation with Other Modules<br>العلاقة مع المواد الدراسية الأخرى | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents<br>أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | After careful study of this course the student should be able to: I- List and describe the Thermodynamics . II- Explain the meaning of the System. III- Define First law of thermodynamicst, First law of thermodynamicst,. IV- Calculate the work . V- Explain the Carnot cycle . VI- Derive and use the work equation. VII- Define and calculate the free energy. VIII- Describe the general procedure for calculation of Entroyp. IX- Describe the types of Maxwell relashin ship. Free energy and Helmholtz energy for closed systems |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 1. It is well known that Physical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>2. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>3. Students can handle the chemicals with good experience. |
| **Indicative Contents**<br>المحتويات الإرشادية | 1. It is well known that Physical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry. |

| Learning and Teaching Strategies<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | |

| Student Workload (SWL)<br>الحمل الدراسي للطالب |
|---|

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | Phase and phase balances |
| **Week 2** | Clapeyron's equation and its applications |
| **Week 3** | Two-component system and types of miscibility |
| **Week 4** | Ideal solutions and associative properties: (low vapor pressure, high boiling point, low freezing point, osmotic pressure) |
| **Week 5** | Free energy and chemical equilibria |
| **Week 6** | |
| **Week 7** | First exam. |
| **Week 8** | Statistical thermodynamics and Boltzmann's law of distribution |
| **Week 9** | The hash function and its calculation for all types of motion (translational, rotational, and |

| | |
|---|---|
| | vibrational) |
| **Week 10** | Calculating thermal energy, |
| **Week 11** | thermal enthalpy, |
| **Week 12** | entropy for all types of motion |
| **Week 13** | Calculating free energy and equilibrium constant using partition functions |
| **Week 14** | Second Exam. |
| **Week 15** | Discussion the home work |
| **Week 16** | |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Definition of some laboratory equipment and chemical safety in the lab |
| **Week 2** | Determination the one phase diagram |
| **Week 3** | Phenol- water phase diagram |
| **Week 4** | Refractive index |
| **Week 5** | Three component system |
| **Week 6** | Boiling point elevation |
| **Week 7** | Exam |

## Learning and Teaching Resources

**مصادر التعلم والتدريس**

**Physical Chemistry, Atkins, 6th ed. 2001**

- **.Problems in physical chemistry 1st , by K.K. Shrma,1994**
- **.Physical chemistry 5th by Walter J. Moor, 1972**
- **.Physical chemistry 7th by Robert Al-Berty, 1987**

| | **Text** | **Available in the Library?** |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

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| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Mathematics** | | | **Module Delivery** | |
| **Module Type** | S | | | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | | | | | |
| **ECTS Credits** | 2.00 | | | | |
| **SWL (hr/sem)** | 150 | | | | |
| **Module Level** | | | **Semester of Delivery** | | |
| **Administering Department** | | | **College** | | |
| **Module Leader** | **Ziyad Khalaf** | | **e-mail** | | |
| **Module Leader's Acad. Title** | | | **Module Leader's Qualification** | | Ph.D. |
| **Module Tutor** | | | **e-mail** | None | |
| **Peer Reviewer Name** | | | **e-mail** | | |
| **Review Committee Approval** | | | **Version Number** | 1.0 | |

| Relation with Other Modules<br>العلاقة مع المواد الدراسية الأخرى |
|---|

| | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

## Module Aims, Learning Outcomes and Indicative Contents
## أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

| | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | 1-To know the cardinal factor, homology, and Asian functions.<br>2- Learn how to calculate limits.<br>3- Be able to perform differentiation.<br>4- Distinguish between partial differentiation and ordinary differentiation.<br>5- Learn about the Cauchy-Riemann equations.<br>6- Learn how to integrate.<br>7- Learn about Integration methods.<br>8- Can implement the multiplier.<br>9- Distinguish between partial integration and arbitrary integration. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 4. Functions in a real variable - objectives - continuity - differentiation - integration. |
| **Indicative Contents**<br>المحتويات الإرشادية | Learn how to integrate.<br>Learn about Integration methods.<br>Can implement the multiplier.<br>Distinguish between partial integration and arbitrary integration. |

## Learning and Teaching Strategies
## استراتيجيات التعلم والتعليم

| | |
|---|---|
| **Strategies** | |

## Student Workload (SWL)
## الحمل الدراسي للطالب

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

## Module Evaluation
## تقييم المادة الدراسية

| | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)**<br>**المنهاج الاسبوعي النظري** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Implicit derivation |
| **Week 2** | integration |
| **Week 3** | Indefinite integration |
| **Week 4** | Integration methods |
| **Week 5** | Partial derivation |
| **Week 6** | Integration methods |
| **Week 7** | Exercise solutions |
| **Week 8** | Partial integration |
| **Week 9** | Complex numbers |
| **Week 10** | Double integration |
| **Week 11** | Cauchy_Riemann equations |
| **Week 12** | Exercise solutions |
| **Week 13** | Cauchy_Riemann equations |
| **Week 14** | Double integration |
| **Week 15** | Second exam |
| **Week 16** | |

| Delivery Plan (Weekly Lab. Syllabus)<br>المنهاج الاسبوعي للمختبر | |
|---|---|
| | **Material Covered** |
| **Week 1** | |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

| Learning and Teaching Resources<br>مصادر التعلم والتدريس | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C** - Good | **جيد** | 70 - 79 | Sound work with notable errors |
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| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

**ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي**

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| **Module Information**<br>**معلومات المادة الدراسية** | | |
|---|---|---|
| **Module Title** | **ORGANIC CHEMISTRY-2** | **Module Delivery** |

| | | | |
|---|---|---|---|
| **Module Type** | C | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | | | |
| **ECTS Credits** | 4.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | د. نور عبد الرزاق | **e-mail** | |
| **Module Leader's Acad. Title** | استاذ مساعد | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | After careful study of this course the student should be able to: I- Introduction in organic chemistry, chemical bond, reaction of organic chemistry. II- Explain the meaning of the Alkanes: introduction, properties, names, preparations, mechanism, reactions. III- Define Dienes : introduction, properties, names, Alkynes: introduction, properties, names,,. IV- Alkynes: preparations. V- Explain the Alkynes: , mechanism, reactions. VI- Cyclo alkane: introduction, properties, names, preparations. VII- Cyclo alkane: mechanism, reactions | | |

| | |
|---|---|
| **Module Learning Outcomes**<br><br>**مخرجات التعلم للمادة الدراسية** | 5. It is well known that Organic chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>6. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>7. Students can handle the chemicals with good experience. |
| **Indicative Contents**<br>**المحتويات الإرشادية** | 2. It is well known that Organic chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry. |
| **Learning and Teaching Strategies**<br>**استراتيجيات التعلم والتعليم** | |
| **Strategies** | |

| **Student Workload (SWL)**<br>**الحمل الدراسي للطالب** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>**الحمل الدراسي المنتظم للطالب خلال الفصل** | 64 | **Structured SWL (h/w)**<br>**الحمل الدراسي المنتظم للطالب أسبوعيا** | 64 |
| **Unstructured SWL (h/sem)**<br>**الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 68 | **Unstructured SWL (h/w)**<br>**الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 68 |
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

| **Module Evaluation**<br>**تقييم المادة الدراسية** | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |

| | | | | | |
|---|---|---|---|---|---|
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)**<br>**المنهاج الاسبوعي النظري** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Aromatic compounds: (Part Two) Introduction to them, their structure, naming, properties, mechanics of preparation, and interactions. |
| **Week 2** | Alkyl halides: introduction, structure, nomenclature, properties, mechanics of preparation, reactions, and analysis.<br><br>Written exam, semester 2. |
| **Week 3** | Alcohols: introduction, structure, nomenclature, properties, mechanics of preparation,, interactions, and analysis. |
| **Week 4** | Alcohols:, properties, |
| **Week 5** | Alcohols: mechanics of preparation,, |
| **Week 6** | Alcohols:, interactions, and analysis. |
| **Week 7** | First Exam |
| **Week 8** | Ethers: introduction, structure, nomenclature. |
| **Week 9** | Ethers: introduction, structure, nomenclature |
| **Week 10** | Alkynes: preparations |
| **Week 11** | Alkynes: , mechanism, reactions |
| **Week 12** | Cyclic ethers: introduction, structure, nomenclature |
| **Week 13** | Cyclic ethers:, reactions, mechanics, preparation, interactions, desalination. |
| **Week 14** | review |
| **Week 15** | Second Examination |
| **Week 16** | |

| Delivery Plan (Weekly Lab. Syllabus)<br>المنهاج الاسبوعي للمختبر | |
|---|---|
| | **Material Covered** |
| **Week 1** | Definition of some laboratory equipment and chemical safety in the lab |
| **Week 2** | Preparation of alkyl halides |
| **Week 3** | Distinction between alcohols |
| **Week 4** | Distinguish between aldehyde and ketone |
| **Week 5** | Preparing aspirin |
| **Week 6** | Preparing soap |
| **Week 7** | Month exam |

## Learning and Teaching Resources
## مصادر التعلم والتدريس

**Organic chemistry by R. Morrisn and R. boyd ,4th Edition Allyn and Bacon1998** **.1**

**2-الكيمياء العضوية فهدعلي حسين وجماعته الجزء الاول جامعة بغداد 1977**

**Organic reaction mechanisms by Groutas, William 1st edition 2000**

| | **Text** | **Available in the Library?** |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C** - Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D** - Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

**ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي**

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | |
|---|---|---|---|
| **Module Title** | **ORGANIC CHEMISTRY-2** | **Module Delivery** | |
| **Module Type** | C | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | | | |
| **ECTS Credits** | 4.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | د. نور عبد الرزاق | **e-mail** | |
| **Module Leader's Acad. Title** | استاذ مساعد | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| Relation with Other Modules<br>العلاقة مع المواد الدراسية الأخرى |
|---|

| | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

## Module Aims, Learning Outcomes and Indicative Contents
## أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

| | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | After careful study of this course the student should be able to: I- Introduction in organic chemistry, chemical bond, reaction of organic chemistry. II- Explain the meaning of the Alkanes: introduction, properties, names, preparations, mechanism, reactions. III- Define Dienes : introduction, properties, names, Alkynes: introduction, properties, names,,. IV- Alkynes: preparations. V- Explain the Alkynes: , mechanism, reactions. VI- Cyclo alkane: introduction, properties, names, preparations. VII- Cyclo alkane: mechanism, reactions |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 8. It is well known that Organic chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>9. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>10. Students can handle the chemicals with good experience. |
| **Indicative Contents**<br>المحتويات الإرشادية | 3. It is well known that Organic chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry. |

## Learning and Teaching Strategies
## استراتيجيات التعلم والتعليم

| | |
|---|---|
| **Strategies** | |

| Student Workload (SWL)<br>الحمل الدراسي للطالب | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | Aromatic compounds: (Part Two) Introduction to them, their structure, naming, properties, mechanics of preparation, and interactions. |
| **Week 2** | Alkyl halides: introduction, structure, nomenclature, properties, mechanics of preparation, reactions, and analysis.<br><br>Written exam, semester 2. |
| **Week 3** | Alcohols: introduction, structure, nomenclature, properties, mechanics of preparation,, interactions, and analysis. |

| | |
|---|---|
| **Week 4** | Alcohols:, properties, |
| **Week 5** | Alcohols: mechanics of preparation,, |
| **Week 6** | Alcohols:, interactions, and analysis. |
| **Week 7** | First Exam |
| **Week 8** | Ethers: introduction, structure, nomenclature. |
| **Week 9** | Ethers: introduction, structure, nomenclature |
| **Week 10** | Alkynes: preparations |
| **Week 11** | Alkynes: , mechanism, reactions |
| **Week 12** | Cyclic ethers: introduction, structure, nomenclature |
| **Week 13** | Cyclic ethers:, reactions, mechanics, preparation, interactions, desalination. |
| **Week 14** | review |
| **Week 15** | Second Examination |
| **Week 16** | |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Definition of some laboratory equipment and chemical safety in the lab |
| **Week 2** | Preparation of alkyl halides |
| **Week 3** | Distinction between alcohols |
| **Week 4** | Distinguish between aldehyde and ketone |
| **Week 5** | Preparing aspirin |
| **Week 6** | Preparing soap |
| **Week 7** | Month exam |

| Learning and Teaching Resources<br>مصادر التعلم والتدريس | | |
|---|---|---|
| .1 Organic chemistry by R. Morrisn and R. boyd ,4th Edition Allyn and Bacon1998<br>2-الكيمياء العضوية فهدعلي حسين وجماعته الجزء الاول جامعة بغداد 1977<br>Organic reaction mechanisms by Groutas, William 1st edition 2000 | | |
| | **Text** | **Available in the Library?** |
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | |
|---|---|---|---|
| **Module Title** | **Physical Chemistry-1** | **Module Delivery** | |
| **Module Type** | C | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | | | |
| **ECTS Credits** | 4.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |

| | | | |
|---|---|---|---|
| **Module Leader** | **Hazim Yahya** | **e-mail** | |
| **Module Leader's Acad. Title** | Prof. | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | After careful study of this course the student should be able to: I- List and describe the Thermodynamics . II- Explain the meaning of the System. III- Define First law of thermodynamicst, First law of thermodynamicst,. IV- Calculate the work . V- Explain the Carnot cycle . VI- Derive and use the work equation. VII- Define and calculate the free energy. VIII- Describe the general procedure for calculation of Entroyp. IX- Describe the types of Maxwell relashin ship. Free energy and Helmholtz energy for closed systems | | |
| **Module Learning Outcomes**<br>**مخرجات التعلم للمادة الدراسية** | 11. It is well known that Physical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>12. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>13. Students can handle the chemicals with good experience. | | |
| **Indicative Contents** | 4. It is well known that Physical chemistry is the main subject in | | |

| | |
|---|---|
| المحتويات الإرشادية | chemistry which mean it can be taken in all types of chemistry. |

| Learning and Teaching Strategies<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | |

| Student Workload (SWL)<br>الحمل الدراسي للطالب | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

| Module Evaluation<br>تقييم المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus)<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | Thermodynamics in general |
| **Week 2** | Zero law of thermodynamics |
| **Week 3** | The first law of thermodynamics |

| | |
|---|---|
| **Week 4** | Applications of the first law of thermodynamics |
| **Week 5** | Isothermal and literary processes |
| **Week 6** | The phenomenon of Jules - Thompson and its applications |
| **Week 7** | First exam. |
| **Week 8** | Hess's law and its applications |
| **Week 9** | Enthalpy change the reaction with temperature |
| **Week 10** | The second law of thermodynamics - basic concepts |
| **Week 11** | Entropy changes (for phase transfer, To expand and compress gases and to change temperatures) |
| **Week 12** | Free energy and Helmholtz energy for closed systems |
| **Week 13** | Third law of thermodynamics and its applications |
| **Week 14** | Second Exam. |
| **Week 15** | Discussion the home work |
| **Week 16** | |

## Delivery Plan (Weekly Lab. Syllabus)
## المنهاج الاسبوعي للمختبر

| | **Material Covered** |
|---|---|
| **Week 1** | Definition of some laboratory equipment and chemical safety in the lab |
| **Week 2** | Preparation and standardization of hydrochloric acid against borax or sodium carbonate |
| **Week 3** | Preparation and standardization of hydrochloric acid against sodium hydroxide |
| **Week 4** | Preparation and standardization of sodium hydroxide and sodium carbonate against hydrochloric acid |
| **Week 5** | Preparation and determination of acetic acid against sodium hydroxide |
| **Week 6** | Preparation and determination of chloride ion by Mohr's method titration. |
| **Week 7** | Determination of water hardness. |

## Learning and Teaching Resources
## مصادر التعلم والتدريس

**Physical Chemistry, Atkins, 6th ed. 2001**

- **.Problems in physical chemistry 1st , by K.K. Shrma,1994**

| .Physical chemistry 5th by Walter J. Moor, 1972 • <br> .Physical chemistry 7th by Robert Al-Berty, 1987 • | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| **GRADING SCHEME** <br> **مخطط الدرجات** | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| **Module Information**<br>**معلومات المادة الدراسية** | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Separation Methods** | | | **Module Delivery** | |
| **Module Type** | C | | | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | | | | | |
| **ECTS Credits** | 3.00 | | | | |
| **SWL (hr/sem)** | 150 | | | | |
| **Module Level** | | | **Semester of Delivery** | | |
| **Administering Department** | | | **College** | | |

| | | | |
|---|---|---|---|
| **Module Leader** | د . اسيل مشتاق كاظم | **e-mail** | |
| **Module Leader's Acad. Title** | استاذ مساعد | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | First objective of this course is to provide enough information regarding analytical chemistry in term of preparation and instrumental analysis.<br>Second objective is to develop an ability to distinguish between the accuracy and precision of experimental data and to show how to solve some challenges during the lab work.<br>Third objective is to definition the developed and classical analysis methods.<br>Fourth objective is to enable the students in preparation different solutions in different expression and how to related among them.<br>Fifth objective is teaching the students the laboratory skills that will give students confidence in their ability to obtain high-quality analytical data. | | |
| **Module Learning Outcomes**<br>**مخرجات التعلم للمادة الدراسية** | 14. It is well known that analytical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>15. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>16. Students can handle the chemicals with good experience.<br>17. Students can develop their thoughts to create some projects that are useful in the field. | | |
| **Indicative Contents**<br>**المحتويات الإرشادية** | Analytical chemistry deals with methods for determining the chemical composition of samples of matter. A **qualitative method** yields information about the identity of atomic or molecular species or the functional groups in the sample. A **quantitative** | | |

| | |
|---|---|
| | **method** |

## Learning and Teaching Strategies
## استراتيجيات التعلم والتعليم

| | |
|---|---|
| **Strategies** | |

## Student Workload (SWL)
## الحمل الدراسي للطالب

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | Analytical separation methods |
| **Week 2** | Analytical class classification |
| **Week 3** | Separation by sedimentation |

| | |
|---|---|
| **Week 4** | Separation by distillation |
| **Week 5** | Extraction |
| **Week 6** | Ion exchangers |
| **Week 7** | Chromatography |
| **Week 8** | First Exam |
| **Week 9** | Analytical separation methods |
| **Week 10** | Analytical class classification |
| **Week 11** | Separation by sedimentation |
| **Week 12** | Separation by distillation |
| **Week 13** | Extraction |
| **Week 14** | Second Exam |
| **Week 15** | Chromatography |
| **Week 16** | |

## Delivery Plan (Weekly Lab. Syllabus)
## المنهاج الاسبوعي للمختبر

| | **Material Covered** |
|---|---|
| **Week 1** | Determination of aluminum in homogeneous solutions |
| **Week 2** | Cement analysis |
| **Week 3** | Ion exchange separation methods and testing |
| **Week 4** | Preparing the ion exchanger column and estimating the total capacity of the column |
| **Week 5** | Determine the ratio of sodium chloride and nitrate in a model |
| **Week 6** | Determine the hardness of water using a cation exchanger. |
| **Week 7** | Paper and thin layer chromatography. |

## Learning and Teaching Resources
## مصادر التعلم والتدريس

| 1-Douglas A. Skoog , Funamentals of analytical nchemistry 4th edit. Holt Rinehart<br>- مدخل الى تقنيات الفصل في الكيمياء ، د. سمير عبد الرحيم ، جامعة الموصل 1985<br>3- طرق الفصل في التحليل الكيميائي ، د. البرتين حبوش ، مطبعة جامعة بغداد 1982<br>4 | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| **GRADING SCHEME**<br>**مخطط الدرجات** | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C** - Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D** - Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| **Module Information**<br>**معلومات المادة الدراسية** | | | |
|---|---|---|---|
| **Module Title** | COMPUTER | **Module Delivery** | |
| **Module Type** | B | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | | | |
| **ECTS Credits** | 2.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |

| | | | |
|---|---|---|---|
| **Module Leader** | **HazimYahya** | **e-mail** | |
| **Module Leader's Acad. Title** | Prof. | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | Teaching the student to be familiar with the basic rules for dealing with and managing a computer to help him complete projects<br>Printing matters, preparing statistics and graphs, creating presentations and designing engineering plans<br>And others, and the emergence of the Internet as a means of communication available to everyone, it has become very necessary for students to learn to use<br>Computer due to the role of the Internet in many fields, including education, scientific research, trade and marketing | | |
| **Module Learning Outcomes**<br>**مخرجات التعلم للمادة الدراسية** | 18. The student's understanding of the material<br>19. The ability to analyze and apply what you have learned practically on the calculator<br>20. The evaluation should be done by presenting the material to the students in the laboratory and then applying it | | |
| **Indicative Contents**<br>**المحتويات الإرشادية** | The theoretical method and explanation is by presenting the material on the Point Power program in the form of diagrams and pictures<br>This is to attract the student's attention and help him not feel bored. The practical method is to apply what has been presented<br>On the calculator and conduct daily and monthly exams. | | |

| | |
|---|---|
| **Learning and Teaching Strategies**<br>**استراتيجيات التعلم والتعليم** | |
| **Strategies** | |

| **Student Workload (SWL)**<br>**الحمل الدراسي للطالب** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>**الحمل الدراسي المنتظم للطالب خلال الفصل** | 64 | **Structured SWL (h/w)**<br>**الحمل الدراسي المنتظم للطالب أسبوعيا** | 64 |
| **Unstructured SWL (h/sem)**<br>**الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 68 | **Unstructured SWL (h/w)**<br>**الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 68 |
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

| **Module Evaluation**<br>**تقييم المادة الدراسية** | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)**<br>**المنهاج الاسبوعي النظري** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Phases of the computer course<br>And its generations and data<br>And information |
| **Week 2** | **Computer features**<br>**And areas of its use**<br>**And its components** |

| | |
|---|---|
| **Week 3** | Types of computers<br>And its classification |
| **Week 4** | Computer components and parts<br>Physical input devices<br>And the output |
| **Week 5** | Computer box and software entity |
| **Week 6** | Preparation systems and personal computers |
| **Week 7** | first exam |
| **Week 8** | Computer platform and factors<br>Which should be considered when purchasing<br>the computer |
| **Week 9** | Main features of a personal computer |
| **Week 10** | viruses<br>the computer |
| **Week 11** | Damage resulting from<br>Viruses |
| **Week 12** | • The most important steps<br>• Viruses-<br>• Necessary to protect against hacking<br>• |
| **Week 13** | • Virus components<br>• Computer damage<br>• And its types<br>• |
| **Week 14** | • Second Exam. |
| **Week 15** | • Sources of hacking and risks |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | **لايوجد عملي في هذه الماده** |
| **Week 2** | |

| | |
|---|---|
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

## Learning and Teaching Resources

## مصادر التعلم والتدريس

[1] Mars climate orbiter. http://mars.jpl.nasa.gov/msp98/orbiter/, 1999. [Online; accessed 17-March-2015]. [2] Moth in the machine: Debugging the origins of 'bug'. Computer World Magazine, September 2011. [3] errno.h: system error numbers - base definitions reference. http://pubs.opengroup. org/onlinepubs/9699919799/basedefs/errno.h.html, 2013. [Online; accessed 13-September-2015].

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

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| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| **Module Information**<br>**معلومات المادة الدراسية** | | |
|---|---|---|
| **Module Title** | COMPUTER | **Module Delivery** |
| **Module Type** | B | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical** |
| **Module Code** | | |
| **ECTS Credits** | 2.00 | |

| | | | |
|---|---|---|---|
| **SWL (hr/sem)** | 150 | **Seminar** | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | **HazimYahya** | **e-mail** | |
| **Module Leader's Acad. Title** | Prof. | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | Teaching the student to be familiar with the basic rules for dealing with and managing a computer to help him complete projects<br>Printing matters, preparing statistics and graphs, creating presentations and designing engineering plans<br>And others, and the emergence of the Internet as a means of communication available to everyone, it has become very necessary for students to learn to use<br>Computer due to the role of the Internet in many fields, including education, scientific research, trade and marketing | | |
| **Module Learning Outcomes**<br>**مخرجات التعلم للمادة الدراسية** | 21. The student's understanding of the material<br>22. The ability to analyze and apply what you have learned practically on the calculator<br>23. The evaluation should be done by presenting the material to the students in the laboratory and then applying it | | |

| | |
|---|---|
| **Indicative Contents**<br>**المحتويات الإرشادية** | The theoretical method and explanation is by presenting the material on the Point Power program in the form of diagrams and pictures<br>This is to attract the student's attention and help him not feel bored. The practical method is to apply what has been presented<br>On the calculator and conduct daily and monthly exams. |

## Learning and Teaching Strategies
## استراتيجيات التعلم والتعليم

| | |
|---|---|
| **Strategies** | |

## Student Workload (SWL)
## الحمل الدراسي للطالب

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>**الحمل الدراسي المنتظم للطالب خلال الفصل** | 64 | **Structured SWL (h/w)**<br>**الحمل الدراسي المنتظم للطالب أسبوعيا** | 64 |
| **Unstructured SWL (h/sem)**<br>**الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 68 | **Unstructured SWL (h/w)**<br>**الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 68 |
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | Phases of the computer course<br>And its generations and data |

| | |
|---|---|
| | And information |
| **Week 2** | **Computer features**<br>**And areas of its use**<br>**And its components** |
| **Week 3** | Types of computers<br>And its classification |
| **Week 4** | Computer components and parts<br>Physical input devices<br>And the output |
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| **Week 10** | viruses<br>the computer |
| **Week 11** | Damage resulting from<br>Viruses |
| **Week 12** | • The most important steps<br>• Viruses-<br>• Necessary to protect against hacking<br>• |
| **Week 13** | • Virus components<br>• Computer damage<br>• And its types<br>• |
| **Week 14** | • Second Exam. |
| **Week 15** | • Sources of hacking and risks |

## Delivery Plan (Weekly Lab. Syllabus)
## المنهاج الاسبوعي للمختبر

| | Material Covered |
|---|---|
| **Week 1** | لايوجد عملي في هذه الماده |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

## Learning and Teaching Resources

## مصادر التعلم والتدريس

[1] Mars climate orbiter. http://mars.jpl.nasa.gov/msp98/orbiter/, 1999. [Online; accessed 17-March-2015]. [2] Moth in the machine: Debugging the origins of 'bug'. Computer World Magazine, September 2011. [3] errno.h: system error numbers - base definitions reference. http://pubs.opengroup. org/onlinepubs/9699919799/basedefs/errno.h.html, 2013. [Online; accessed 13-September-2015].

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
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| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| **Module Information**<br>**معلومات المادة الدراسية** | | |
|---|---|---|
| **Module Title** | ENGLISH LANGUAGE | **Module Delivery** |

| | | | |
|---|---|---|---|
| **Module Type** | B | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | UOBAB0603026 | | |
| **ECTS Credits** | 2.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | **Amina Ameer** | **e-mail** | |
| **Module Leader's Acad. Title** | | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | 1- Explaining the material in a clear and understandable way for all students.<br>2. Involve students in discussing and solving exercises.<br>3- Explaining the study material using various methods<br>An explanation to develop students' abilities and break boredom in the classroom | | |
| **Module Learning Outcomes**<br>**مخرجات التعلم للمادة الدراسية** | 24. The student's understanding of the material<br>25. The ability to analyze and apply what you have learned practically on the English<br>26. The evaluation should be done by presenting the material to the students in the laboratory and then applying it | | |

| | |
|---|---|
| | |
| **Indicative Contents**<br>**المحتويات الإرشادية** | The theoretical method and explanation is by presenting the material on the Point Power program in the form of diagrams and pictures<br>This is to attract the student's attention and help him not feel bored. The practical method is to apply what has been presented<br>On the calculator and conduct daily and monthly exams. |
| **Learning and Teaching Strategies**<br>**استراتيجيات التعلم والتعليم** | |
| **Strategies** | |

| **Student Workload (SWL)**<br>**الحمل الدراسي للطالب** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>**الحمل الدراسي المنتظم للطالب خلال الفصل** | 64 | **Structured SWL (h/w)**<br>**الحمل الدراسي المنتظم للطالب أسبوعيا** | 64 |
| **Unstructured SWL (h/sem)**<br>**الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 68 | **Unstructured SWL (h/w)**<br>**الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 68 |
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

| **Module Evaluation**<br>**تقييم المادة الدراسية** | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)**<br>**المنهاج الاسبوعي النظري** | |
|---|---|
| | **Material Covered** |

| | |
|---|---|
| **Week 1** | Present simple (I Do) |
| **Week 2** | Present continuous and simple 1 |
| **Week 3** | Present continuous and simple 2 |
| **Week 4** | Past simple (IDid) |
| **Week 5** | Past continuous (I was doing) |
| **Week 6** | Present perfect 1( have done ) |
| **Week 7** | Present perfect 2( I have done) |
| **Week 8** | Present perfect continuous (I have been doing) |
| **Week 9** | Present perfect continuous and simple |
| **Week 10** | First Exam |
| **Week 11** | For and since When ..? and how long |
| **Week 12** | Present perfect and past 1( I have done and Did ) |
| **Week 13** | Past perfect ( I had done ) |
| **Week 14** | Past perfect continuous ( I had been doing ) |
| **Week 15** | • Second Exam |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | **لايوجد عملي في هذه الماده** |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

## Learning and Teaching Resources

**مصادر التعلم والتدريس**

Stern, H.H. (1992). Issues and options in language teaching (edited posthumously by Patrick Allen & Birgit Harley). Oxford: Oxford University Press. Ur, P. (1996). A Course in Language Teaching.

| Cambridge: Cambridge University Press. Vermes, A. (2010). Translation in foreign language teaching: A brief overview of pros and cons, Eger, Journal of English Studies, 10, 83-93. | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| **GRADING SCHEME**<br>**مخطط الدرجات** | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | |
|---|---|---|---|
| **Module Title** | **Chemistry of represented elements 1** | **Module Delivery** | |
| **Module Type** | C | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | |
| **Module Code** | | | |
| **ECTS Credits** | 3.00 | | |
| **SWL (hr/sem)** | 150 | | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |

| | | | |
|---|---|---|---|
| **Module Leader** | د. محمد حامد سعيد | **e-mail** | |
| **Module Leader's Acad. Title** | استاذ | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | Inorganic chemistry is the study of the chemical elements and the reactions which these elements undergo. With the exclusion of carbon, there exist some 90 naturally-occurring chemical elements. The broad classification of these elements, first in the Periodic Table, then in special families, groups, and periods, form the basis of inorganic chemistry. The relationship between chemical elements and their compounds is based primarily on atomic structures and electronic configurations. Chemical bonding of different types are found in molecular and ionic compounds, and these bonding types are discussed in terms of the latest theories and experimental results. Topics such as coordination compounds, boron hydrides, metal cluster compounds, metal carbonyls, solid state structures, and the geometry of finite molecular species are presented. The correlation of physical properties with structure, composition, and electronic states of the metal ionics are developed, based on theoretical considerations. | | |
| **Module Learning Outcomes**<br><br>**مخرجات التعلم للمادة الدراسية** | 27. It is well known that analytical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>28. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>29. Students can handle the chemicals with good experience.<br>30. Students can develop their thoughts to create some projects that are | | |

| | |
|---|---|
| | useful in the field. |
| **Indicative Contents**<br>**المحتويات الإرشادية** | Inorganic chemistry is the study of the chemical elements and the reactions which these elements undergo. With the exclusion of carbon, there exist some 90 naturally-occurring chemical elements. The broad classification of these elements, first in the Periodic Table, then in special families, groups, and periods, form the basis of inorganic chemistry. |
| **Learning and Teaching Strategies**<br>**استراتيجيات التعلم والتعليم** | |
| **Strategies** | |

| **Student Workload (SWL)**<br>**الحمل الدراسي للطالب** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>**الحمل الدراسي المنتظم للطالب خلال الفصل** | 64 | **Structured SWL (h/w)**<br>**الحمل الدراسي المنتظم للطالب أسبوعيا** | 64 |
| **Unstructured SWL (h/sem)**<br>**الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 68 | **Unstructured SWL (h/w)**<br>**الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 68 |
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

| **Module Evaluation**<br>**تقييم المادة الدراسية** | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)**<br>**المنهاج الاسبوعي النظري** | |
|---|---|
| | **Material Covered** |

| | |
|---|---|
| **Week 1** | 1- A general introduction to the periodic table. |
| **Week 2** | 2- A general review of the basics of periodic change in physical and chemical properties. |
| **Week 3** | 3- Introduction to methods of preparing and extracting elements and their compounds. |
| **Week 4** | 4- Division of elements according to properties |
| **Week 5** | 5- Study of the element hydrogen |
| **Week 6** | 6- Study of the basic compounds of hydrogen |
| **Week 7** | 7- Exam1 |
| **Week 8** | 8- Study the first group and methods of preparing it |
| **Week 9** | 9- Study the uses of the elements of the first group |
| **Week 10** | 10- Study the second group and methods of preparing it |
| **Week 11** | 11- Study the uses of the elements of the second group |
| **Week 12** | 12- Study of the third group and methods of preparing it |
| **Week 13** | 13- Study the properties of boron and aluminum |
| **Week 14** | 14- Study the uses of the elements of the third group |
| **Week 15** | Exam2 |
| **Week 16** | |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Definition of some laboratory equipment and chemical safety in the lab |
| **Week 2** | Preparation and standardization of hydrochloric acid against borax or sodium carbonate |
| **Week 3** | Preparation and standardization of hydrochloric acid against sodium hydroxide |
| **Week 4** | Preparation and standardization of sodium hydroxide and sodium carbonate against hydrochloric acid |

| | |
|---|---|
| **Week 5** | Preparation and determination of acetic acid against sodium hydroxide |
| **Week 6** | Preparation and determination of chloride ion by Mohr's method titration. |
| **Week 7** | Determination of water hardness. |

## Learning and Teaching Resources
## مصادر التعلم والتدريس


د. نعمان ألنعيمي "الكيمياء اللاعضوية" الجزء ألاول و الثاني ، مطبعة جامعة بغداد، 1978.

-1 د. أحسان عبد الغني مصطفى " الكيمياء اللاعضوية والتناسقية" ، مطبعة جامعة الموصل، 1988.

-2 د. باسم محمد سعيد " الكيمياء اللاعضوية العملي " ، مطبعة جامعة الموصل ، 1987.

-3 .P.J.Durrant " General and inorganic chemistry" , 3rd edition, Dai Nippon Printing Co(H.K) Ltd, 1964

-4 .J.D. Lee " Consice inorganic chemistry", 1970

-5 M.R.Wright " An Introduction to Aqueos Electrolyte Solution" , John wiley and sons, 2007


| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C** - Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D** - Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| **Module Information**<br>**معلومات المادة الدراسية** | | |
|---|---|---|
| **Module Title** | **Chemistry of represented elements 2** | **Module Delivery** |
| **Module Type** | C | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical** |
| **Module Code** | | |
| **ECTS Credits** | 3.00 | |

| | | | |
|---|---|---|---|
| **SWL (hr/sem)** | 150 | **Seminar** | |
| **Module Level** | | **Semester of Delivery** | |
| **Administering Department** | | **College** | |
| **Module Leader** | د. محمد حامد سعيد | **e-mail** | |
| **Module Leader's Acad. Title** | استاذ | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | **e-mail** | None |
| **Peer Reviewer Name** | | **e-mail** | |
| **Review Committee Approval** | | **Version Number** | 1.0 |

| **Relation with Other Modules**<br>**العلاقة مع المواد الدراسية الأخرى** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |
| **Module Aims, Learning Outcomes and Indicative Contents**<br>**أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | | | |
| **Module Aims**<br>**أهداف المادة الدراسية** | Inorganic chemistry is the study of the chemical elements and the reactions which these elements undergo. With the exclusion of carbon, there exist some 90 naturally-occurring chemical elements. The broad classification of these elements, first in the Periodic Table, then in special families, groups, and periods, form the basis of inorganic chemistry. The relationship between chemical elements and their compounds is based primarily on atomic structures and electronic configurations. Chemical bonding of different types are found in molecular and ionic compounds, and these bonding types are discussed in terms of the latest theories and experimental results. Topics such as coordination compounds, boron hydrides, metal cluster compounds, metal carbonyls, solid state structures, and the geometry of finite molecular species are presented. The correlation of physical properties with structure, composition, and electronic states of the metal ionics are developed, based on theoretical considerations. | | |
| **Module Learning Outcomes** | 31. It is well known that analytical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>32. Students are able to prepare the accurate concentration for the | | |

| | |
|---|---|
| مخرجات التعلم للمادة الدراسية | solutions in any lab they do experiment.<br>33. Students can handle the chemicals with good experience.<br>34. Students can develop their thoughts to create some projects that are useful in the field. |
| **Indicative Contents**<br>المحتويات الإرشادية | Inorganic chemistry is the study of the chemical elements and the reactions which these elements undergo. With the exclusion of carbon, there exist some 90 naturally-occurring chemical elements. The broad classification of these elements, first in the Periodic Table, then in special families, groups, and periods, form the basis of inorganic chemistry. |
| **Learning and Teaching Strategies**<br>استراتيجيات التعلم والتعليم | |
| **Strategies** | |

| **Student Workload (SWL)**<br>الحمل الدراسي للطالب | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 150 | | |

**Module Evaluation**
**تقييم المادة الدراسية**

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus)<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | Group VII B elements, compounds of halogens with hydrogen, halides and methods of preparing them. |
| **Week 2** | Interstitial halogen compounds, polyhalide ions, semi-halogens. |
| **Week 3** | Group II B elements, their electronic structure and tendency to form complexes, mercury compounds (oxides, hydroxides). |
| **Week 4** | Mercury halides, mercury complexes, organic compounds of zinc, cadmium and mercury |
| **Week 5** | Noble gases, their existence and uses, helium chemistry.<br>. |
| **Week 6** | Chemistry of xenon, xenon compounds (fluorides, their preparation and forms, xenon (II) oxide and hydroxide), molecular addition compounds. |
| **Week 7** | 7- Exam1 |
| **Week 8** | Xenon (IV) compounds, its fluorides and chlorides. |
| **Week 9** | Xenon (VI) compounds, its fluorides, methods of preparation, chemical and physical properties, xenon trioxide |
| **Week 10** | Hexa xenes, xenon (VIII) compounds (fluorides, xenon tetraoxide, octa xenes) |
| **Week 11** | Chemistry of krypton and its compounds |
| **Week 12** | Chemistry and compounds of radon (radon fluorides) |
| **Week 13** | Introduction to nuclear chemistry |
| **Week 14** | The ratio of isotopes in nature, the ratio of neutrons to protons, radioactive decay.<br>Application areas of accelerators, chemical purity, benefits and harms of radiation. |
| **Week 15** | Exam2 |
| **Week 16** | |

| Delivery Plan (Weekly Lab. Syllabus)<br>المنهاج الاسبوعي للمختبر | |
|---|---|
| | **Material Covered** |
| **Week 1** | Preparation of ferric hydroxide |

| | |
|---|---|
| | |
| **Week 2** | Preparation of cuprous chloride |
| **Week 3** | Preparation of silver oxide |
| **Week 4** | Preparation of mercury acetate |
| **Week 5** | Detection of carbonate and bicarbonate acid moieties |
| **Week 6** | Detection of sulfite acid moiety<br>Detection of the acidic thiosulfite moiety |
| **Week 7** | Exam |

## Learning and Teaching Resources
## مصادر التعلم والتدريس


د. نعمان ألنعيمي "الكيمياء اللاعضوية" الجزء ألاول و الثاني ، مطبعة جامعة بغداد، 1978.

1- د. أحسان عبد الغني مصطفى " الكيمياء اللاعضوية والتناسقية" ، مطبعة جامعة الموصل، 1988.

2- د. باسم محمد سعيد " الكيمياء اللاعضوية العملي " ، مطبعة جامعة الموصل ، 1987.

3- P.J.Durrant " General and inorganic chemistry" , 3rd edition, Dai Nippon Printing Co(H.K) Ltd, 1964.

4- J.D. Lee " Consice inorganic chemistry", 1970.

5- M.R.Wright " An Introduction to Aqueos Electrolyte Solution" , John wiley and sons, 2007


| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

**ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي**

| | | |
|---|---|---|
| | Ministry of Higher Education and Scientific Research - Iraq<br>University of Babylon<br>College of Science for women<br>Department of Chemistry | |

# MODULE DESCRIPTOR FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Gravimetric analysis** | | **Module Delivery** | | |
| **Module Type** | C | | **Theory**<br>**Lecture**<br>**Lab**<br>**Tutorial**<br>**Practical**<br>**Seminar** | | |
| **Module Code** | | | | | |
| **ECTS Credits** | 3.00 | | | | |
| **SWL (hr/sem)** | 150 | | | | |
| **Module Level** | | | **Semester of Delivery** | | |
| **Administering Department** | | | **College** | | |
| **Module Leader** | د . اسيل مشتاق كاظم | | **e-mail** | | |
| **Module Leader's Acad. Title** | استاذ مساعد | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | | | **e-mail** | None | |
| **Peer Reviewer Name** | | | **e-mail** | | |
| **Review Committee Approval** | | | **Version Number** | 1.0 | |

## Relation with Other Modules
## العلاقة مع المواد الدراسية الأخرى

| | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

## Module Aims, Learning Outcomes and Indicative Contents
## أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

| | |
|---|---|
| **Module Aims**<br>أهداف المادة الدراسية | First objective of this course is to provide enough information regarding analytical chemistry in term of preparation and instrumental analysis.<br>Second objective is to develop an ability to distinguish between the accuracy and precision of experimental data and to show how to solve some challenges during the lab work.<br>Third objective is to definition the developed and classical analysis methods.<br>Fourth objective is to enable the students in preparation different solutions in different expression and how to related among them.<br>Fifth objective is teaching the students the laboratory skills that will give students confidence in their ability to obtain high-quality analytical data. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 35. It is well known that analytical chemistry is the main subject in chemistry which mean it can be taken in all types of chemistry.<br>36. Students are able to prepare the accurate concentration for the solutions in any lab they do experiment.<br>37. Students can handle the chemicals with good experience.<br>38. Students can develop their thoughts to create some projects that are useful in the field. |
| **Indicative Contents**<br>المحتويات الإرشادية | Analytical chemistry deals with methods for determining the chemical composition of samples of matter. A **qualitative method** yields information about the identity of atomic or molecular species or the functional groups in the sample. A **quantitative method** |

## Learning and Teaching Strategies
## استراتيجيات التعلم والتعليم

| | |
|---|---|
| **Strategies** | |

## Student Workload (SWL)
## الحمل الدراسي للطالب

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 64 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 68 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 68 |

| | |
|---|---|
| **Total SWL (h/sem)**<br>**الحمل الدراسي الكلي للطالب خلال الفصل** | 150 |

## Module Evaluation
## تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | **Assignments** | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | |
| | **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
## المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | A general idea about weight analysis and basic principles |
| **Week 2** | Classification of gravimetric analysis methods |
| **Week 3** | Types of precipitants and exam |
| **Week 4** | solubility |
| **Week 5** | Precipitate contamination |
| **Week 6** | Precipitation from homogeneous solutions |
| **Week 7** | Organic reagents and testing |
| **Week 8** | First Exam |
| **Week 9** | Analytical separation methods |
| **Week 10** | Analytical class classification |
| **Week 11** | Separation by sedimentation |
| **Week 12** | Separation by distillation |

| | |
|---|---|
| **Week 13** | Extraction |
| **Week 14** | Second Exam |
| **Week 15** | Chromatography |
| **Week 16** | |

| **Delivery Plan (Weekly Lab. Syllabus)**<br>**المنهاج الاسبوعي للمختبر** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Definition of some laboratory equipment and chemical safety in the lab |
| **Week 2** | Preparation and standardization of hydrochloric acid against borax or sodium carbonate |
| **Week 3** | Preparation and standardization of hydrochloric acid against sodium hydroxide |
| **Week 4** | Preparation and standardization of sodium hydroxide and sodium carbonate against hydrochloric acid |
| **Week 5** | Preparation and determination of acetic acid against sodium hydroxide |
| **Week 6** | Preparation and determination of chloride ion by Mohr's method titration. |
| **Week 7** | Determination of water hardness. |

## Learning and Teaching Resources

**مصادر التعلم والتدريس**

**1-Douglas A. Skoog , Funamentals of analytical nchemistry 4th edit. Holt Rinehart**

- مدخل الى تقنيات الفصل في الكيمياء ، د. سمير عبد الرحيم ، جامعة الموصل 1985

3- طرق الفصل في التحليل الكيميائي ، د. البرتين حبوش ، مطبعة جامعة بغداد 1982

**- Hein Morris ,Leo R. Best ,Scott Patinson and Susan , An introduction to general chemistry , 7th edition , 2001**4

| | **Text** | **Available in the Library?** |
|---|---|---|
| **Required Texts** | | yes |
| **Recommended Texts** | | No |
| **Websites** | | |

**APPENDIX:**

| GRADING SCHEME<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **التقدير** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| | **C** - Good | **جيد** | 70 - 79 | Sound work with notable errors |
| | **D** - Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | **مقبول بقرار** | (45-49) | More work required but credit awarded |
| | **F** – Fail | **راسب** | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

**ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي**

**Ministry of Higher Education and Scientific Research**

**Scientific Ssupervision and Evaluation device**

**Department of Quality Assurance and Academic Accreditation**

**International Accreditation Department**

# *Academic Program Description For the Department of Chemistry for the Academic year 2025-2024according Bologna process*

# *Academic Program Description Form*

**University Name:** University of Babylon

**College/Institute:** College of Science for Women

**Name of the academic or professional program:** Bachelor's in Chemistry

**Name of final degree:** Bachelor's in Chemistry

**Study system:** Bologna track

**Description preparation date:** 20/11/2024

**Date of filling out the file:** 19/2/2025

**Signature:** **Signature:**

**Name of Department Head** **Name of Scientific Assistant**

Hazim Yahya Mohammed Ali Dr. Kawthar Mohammed Ali Hassan

**Date:** 6 / 3 / 2025 **Date:** 6 / 3 / 2025

**The file is checked by**

**Department of Quality Assurance and University Performance**

**Director of the Quality Assurance and University Performance Department:**

Mohammed J.Jader

**Date: 6 / 3 / 2025**

**Signature:**

***Approval of the Dean***

# *Academic Program Description*

## 1. Program Vision

Preparing a scientific and technical staff specialized in chemical analysis techniques with the ability to deal with all techniques in chemical analysis with high professionalism, including analyzes concerned with treating pollution from heavy chemical substances and elements such as lead and mercury that affect the lives of citizens. The department also contributes to the scientific research movement and introductory, developmental and advisory conferences. The unified curricula have been adopted with most Iraqi universities - the Department of Chemistry for the purpose of easy movement between departments in addition to scientific benefit from them, taking into account the requirements of the college as a scientific college according to Bologna process.

## 2. Program Mission

The Department of Chemistry at the College of Science for Girls seeks, in integration with the college's mission, to meet the community's needs for cadres specialized in chemistry, such as pathological analyzes and the use of modern techniques in the field of analysis of toxic and non-toxic elements in all scientific and practical applications, especially in the medical and industrial fields, and the preparation of cadres required by this. Specialized research to work in this field and keep up with the latest developments in it Bologna process.

In order to achieve the vision of the College of Science for Girls and to carry out its pioneering role in assuming a prominent scientific position among local, Arab and foreign colleges, the Department of Chemistry seeks to disseminate and consolidate the latest information about chemistry in Iraqi society to keep pace with the tremendous development that has been achieved during the last three decades in this field and at all levels of Nanotechnology and even outer space.

## 3. Program Objectives

.1Preparing efficient cadres in the field of chemistry sciences

.2 Contribute to the development of cadres working in the field of chemical sciences in various sectors such as the manufacture of fertilizers, oils and dairy.

.3 Developing the work system in the field of chemistry

.4 Spreading scientific awareness in the field of chemistry

5. Calculation of work in the industrial field related to chemistry according to Bologna process.

## 4. Programmatic Accreditation

nothing

## 5. Other External Influences

nothing

## 6. Program Structure

| *Program Structure* | *Number of courses* | | *Credit hours* | | *Percentage* | *Reviews* |
|---|---|---|---|---|---|---|
| Enterprise Requirements | The first stage,Course (1), according to the Bologna system | 2 | The first stage,Course (1), according to the Bologna system | 4 | %13.3 | Basic |
| | The first stage,Course (2), according to the Bologna system | 2 | The first stage,Course (2), according to the Bologna system | 5 | %16.6 | |
| Total summation | | 10 | | 19 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| College Requirements | The first stage,Course (1), according to the Bologna system | 1 | The first stage,Course (1), according to the Bologna system | 5 | %16.6 | Basic |
| | The first stage,Course (2), according to the Bologna system | 1 | The first stage,Course (2), according to the Bologna system | 4 | %13.3 | |
| Total summation | | 2 | | 9 | | |
| Department Requirements | The first stage,Course (1), according to the Bologna system | 3 | The first stage,Course (1), according to the Bologna system | 21 | %70 | Basic |
| | The first stage,Course (2), according to the Bologna system | 3 | The first stage,Course (2), according to the Bologna system | 21 | %70 | |
| | | | | | | |
| Total summation | | 48 | | 143 | | |
| Summer Training | 1 | | - | | | Basic |

| 7. Program Description | | | | |
|---|---|---|---|---|
| Year/level | course code | Name of the course | Credit hours | |
| | | | Theoretical | Practical |

## المرحلة الاولى- نظام بولونيا 2024- 2025

Republic of Iraq - Ministry of Higher Education and Scientific Research

University of Babylon

Bachelor's degree in chemistry science (First cycle)

Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr

Program Curriculum (2024 - 2025)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي

جامعة بابل

بكالوريوس في علوم الكيمياء (الدورة الأولى)

أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة

المنهاج الدراسي للعام ٢٠٢٤-٢٠٢٥

| Level | Semeste | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w | ect (hr/w | ab (hr/w | ?r (hr/w | Tut (hr/w | emn (hr/w | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | One | 1 | CHEM1111 | Qualitative Analysis Chemistry | كيمياء التحليل النوعي | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 137 | 200 | 8.00 | C | |
| | | 2 | CHEM1112 | Inorganic1 | اللاعضوية ١ | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 142 | 175 | 7.00 | C | |
| | | 3 | CHEM1103 | Cytology | علم الخليه | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | S | |
| | | 4 | CHEM1104 | Labortary Safty | السلامة والامن الكيميائي | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 92 | 125 | 5.00 | S | |
| | | 5 | UOBAB1104 | Human and Democracy | حقوق الانسان والديمقراطيه | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | 6 | UOBAB1102 | Arabic Language | اللغة العربيه | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 | 0 | 4 | 0 | 0 | 0 | 18 | 258 | 492 | 750 | 30.00 | | |

| UGl | Semeste | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w | ect (hr/w | ab (hr/w | ?r (hr/w | Tut (hr/w | emn (hr/w | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Two | 1 | CHEM1201 | Volumetric Analysis Chemistry | كيمياء التحليل الحجمي | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 137 | 200 | 8.00 | C | CHEM1111 |
| | | 2 | CHEM1202 | Inorganic 2 | اللاعضوية ٢ | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 142 | 175 | 7.00 | C | CHEM1112 |
| | | 3 | CHEM1203 | Mathematics I | رياضيات I | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 67 | 100 | 4.00 | S | |
| | | 4 | CHEM1204 | Physics Science | الفيزياء | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | S | |
| | | 5 | UOBABb4 | Computer I | حاسوب I | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 42 | 75 | 3.00 | B | |
| | | 6 | UOBABb1101 | English Language I | لغة الانكليزية I | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 | 0 | 4 | 0 | 0 | 0 | 18 | 258 | 492 | 750 | 30.00 | | |

# المرحلة الثانيه –نظام بولونيا 2024 - 2025

Republic of Iraq - Ministry of Higher Education and Scientific Research

University of Babylon

Bachelor's degree in chemistry science (First cycle)

Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr

Program Curriculum (2024 - 2025)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي

جامعة بابل

بكالوريوس في علوم الكيمياء (الدورة الأولى)

أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة

المنهاج الدراسي للعام ٢٠٢٤-٢٠٢٥

| Level | Semester | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UGI | One | 1 | CHEM2311 | Chemistry of represented elements 1 | كيمياء العناصر الممثلة١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 2 | CHEM2302 | Gravimetric analysis | التحليل الوزني | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM2313 | Thermodynamics1 | الديناميه الحراريه١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 4 | CHEM2314 | Organic Chemistry1 | الكيمياء العضوية١ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 5 | CHEM2305 | Differential equations | المعادلات التفاضلية | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 42 | 75 | 3.00 | S | |
| | | 6 | | Computer 2 | الحاسوب ٢ | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 42 | 75 | 3.00 | S | |
| | | | | | | Total | 12 | 0 | 8 | 0 | 0 | 0 | 18 | 318 | 432 | 750 | 30.00 | | |

| Level | Semester | No. | Module Code | Module Name in English | اسم المادة الدراسية | Language | SSWL (hr/w) CL (hr/w) | Lect (hr/w) | Lab (hr/w) | Pr (hr/w) | Tut (hr/w) | Semn (hr/w) | Exam hr/sem | SSWL hr/sem | USSWL hr/sem | SWL hr/sem | ECTS | Module Type | Prerequisite Module(s) Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Two | 1 | CHEM2401 | Chemistry of represented elements 2 | كيمياء العناصر الممثلة ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | CHEM2311 |
| | | 2 | CHEM2402 | Separation Methods | طرق الفصل | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | |
| | | 3 | CHEM2403 | Thermodynamics 2 | الديناميه الحراريه ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | CHEM2313 |
| | | 4 | CHEM2404 | Organic Chemistry 2 | الكيمياء العضوية ٢ | English | 2 | 0 | 2 | 0 | 0 | 0 | 3 | 63 | 87 | 150 | 6.00 | C | CHEM2314 |
| | | 5 | UOBAB2301 | Baath Party crimes | جرائم البعث البائد | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | S | |
| | | | UOBAB2302 | English Languagell | اللغة الانكليزيه II | English | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | S | |
| | | | UOBAB1102 | Arabic Language | اللغة العربيه | Arabic | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 17 | 50 | 2.00 | B | |
| | | | | | | Total | 12 | 0 | 8 | 0 | 0 | 0 | 18 | 318 | 432 | 750 | 30.00 | | |

| ***8.The expected learning outcomes of the program*** | |
|---|---|
| ***Knowledge*** | |
| Knowledge and Understanding | 1- 1. The student gets to know the concept of chemistry<br>2- 2. To classify the needs for developing chemistry<br>3- 3. To separate the chemical specifications according to the ISO system<br>4- 4. To evaluate the cost of maintaining chemical manufacturing equipment |
| ***Skills*** | |
| Subject-Specific Skills | .1The student's knowledge of the concept of chemistry<br>.2The importance of chemistry in areas of life<br>3. Enabling female students to analyze the costs of working in the chemical industry |
| Thinking Skills | .1Thinking skill according to the student's ability (the goal of this skill is for the student to believe in what is tangible (the student's abilities) and understand when, what and how he should think and work to improve the ability to think reasonably(<br>.2 High thinking skill (the goal of this skill is to teach thinking well before making the decision that determines the student's life(<br>3. Critical thinking skills (a term that symbolizes the highest levels of thinking, which aims to pose a problem and then analyze it |
| ***Ethics*** | |

| | |
|---|---|
| Evaluation methods | 1- Exams<br>2- Learning Matrix<br>3- Which Face<br>4- CAT (student feedback)<br>5- Learning Triangle<br>6- Seminars<br>7- On line lecture |

| ***9. Teaching and Learning Strategies*** |
|---|
| ***Learning strategies*** |
| 1-Thinking strategy according to the student's ability (for example: if the student is able to learn the correct concept of management, he will acquire the skill of managing and organizing his personal life).<br>2- High thinking skill strategy (for example, if the student wants to make a good decision, it is important that he thinks well before he makes the decision, and if he decides without thinking, or if he cannot think well, or if he cannot decide, or perhaps he will not decide, then this This means he does not have high thinking skills.)<br>3- Critical thinking strategy in learning (Critical Thanking) (It is a term that symbolizes the highest levels of thinking, which aims to pose a problem and then analyze it logically to reach the desired solution).<br>4-Brainstorming |
| ***Methods of teaching and learning*** |
| 1- Method of giving lectures.<br>2- Student Center<br>3- Student groups |

4- Workshops

5- (Scientific trips to follow up on the environmental reality)

6- Learning Technologies on Campus

7- (Experiential learning)

8- Application Learning)

## *10. Evaluation methods*

1- Exams

2- Learning Matrix

3- Which Face

4- CAT (student feedback)

5- Learning Triangle

***6-*** practical

***8-*** tutorial

## *11. Faculty*

## *Faculty Members*

| ***Academic Rank*** | ***Instructor's name*** | ***Specialization*** | | ***Special Requirements/skills (it applicable)*** | ***Number of the teaching staff*** | |
|---|---|---|---|---|---|---|
| | | ***General*** | ***Special*** | | ***staff*** | ***lecturer*** |

| | | | | | | |
|---|---|---|---|---|---|---|
| Professor | Dr. Hazim Yahya Mohammed Ali | Chemistry | Physical Chemistry | | √ | |
| Professor | Dr.Ayad Fahdil Mohammed | Chemistry | Physical Chemistry | | √ | |
| Professor | Dr. Mohmmed Hamid Saaid | Chemistry | Inorganic Chemistry | | √ | |
| Professor | Dr. Talat Tariq Kahlil | Chemistry | Bio Chemistry | | √ | |
| Professor | Dr. Sadiq Abed Al hussain | Chemistry | Organic Chemistry/Polymer | | √ | |
| Professor | Dr.Fuad Fahdil Mohammed | Chemistry | Analytical Chemistry | | √ | |
| Professor | Dr. Assyl Moshtaq Kahdim | Chemistry | Analytical Chemistry | | √ | |
| Assistant Professor | Dr. Noor Abed Al razaq | Chemistry | Organic Chemistry | | √ | |
| Assistant Professor | Dr. Suad Taha Saad | Chemistry | Inorganic Chemistry | | √ | |
| Assistant Professor | Dr. Ahmed Hassan Shintaf | Chemistry | Organic Chemistry | | √ | |
| Assistant Professor | Dr. Ali Talib Bader | Chemistry | Inorganic Chemistry | | √ | |
| Assistant Professor | Dr. Zainab Hashim Khudaier | Chemistry | Analytical Chemistry | | √ | |
| Assistant Professor | Dr. Ziyad Omran Musaa | Chemistry | Organic Chemistry | | √ | |
| Teacher | Shiren Hamza Abbas | Chemistry | Bio Chemistry | | √ | |
| Teacher | Mohammed Edan Hassan | Chemistry | Analytical Chemistry | | √ | |
| Teacher | Ali Mohsum Mohammed | Chemistry | Physical Chemistry | | √ | |
| assistant teacher | Rana Salah Norri | Chemistry | Bio Chemistry | | √ | |

## *Professional Development*

### *Mentoring new faculty members*

Teaching, like any other art, can be acquired by practicing and following its methods and principles, provided that there is a sincere desire to practice the teaching profession, and the method in education means taking interconnected steps to reach a specific goal that you hope to achieve. Therefore, it must follow the basic principles of good teaching, which are:

1- Directing and guiding learners by creating educational situations that lead to desirable activities.

2- Providing an atmosphere of love, kindness and cooperation between the teacher and the learners and between the learners themselves through his love for his students without discrimination and not excessive feminization.

3- Adopting democratic leadership through the emotional relationship between the teacher and his students, which leads them to control based on mutual respect and creating a cooperative atmosphere between the students and between the teacher and his students.

### *Professional development for faculty members*

1- Thinking strategy according to the student's ability (for example: if the student is able to learn the correct concept of management, he will acquire the skill of managing and organizing his personal life). And the high thinking skill strategy (for example, if the student wants to make a good decision, it is important that he thinks well before he makes the decision, and if he decides without thinking or if he cannot think well or if he cannot decide or perhaps he will not decide, this means He does not have high thinking skills.)

2- General and transferable skills (other skills related to employability and personal development).

3- Verbal communication.

4- Teamwork.

5- Analysis and investigation (collecting information systematically and scientifically to establish facts and principles for solving the problem).

| *12. Acceptance criterion* |
| --- |
| Central acceptance and parallel acceptance |

| *13. The most important sources of information about the program* |
| --- |
| 1- The website of the college and university.<br>**https://csg.uobabylon.edu.iq/**<br>**https://csg.uobabylon.edu.iq/department/?cdid=4**<br>**https://csg.uobabylon.edu.iq/department/dep_lectures.aspx?cdid=4**<br>2- University guide .https://systems.uobabylon.edu.iq /<br>3- The most important books and resources in the college library. |

| *14. Program development plan* |
| --- |
| The Bologna Process was applied to the students of the first stage, and work is being done to apply it to the next stages, along with conducting workshops and seminars to familiarize faculty members with the requirements of the Bologna Process and how to work with it, and to discuss the negatives and obstacles and find solutions for them. The electronic system was applied in the education process. |

| Program skills Outline | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Required program learning outcomes | | | | | | | | | | | | | | | |
| Year/Level | Course Code | Course Name | Basic or optional | Knowledge | | | | Skills | | | | Ethics | | | | Other skills related to employability and personal development | | | |
| | | | | $A_1$ | $A_2$ | $A_3$ | $A_4$ | $B_1$ | $B_2$ | $B_3$ | $B_4$ | $C_1$ | $C_2$ | $C_3$ | $C_4$ | $D_1$ | $D_2$ | $D_3$ | $D_4$ |
| The first stage, Course (1), according to the Bologna system | UOBAB0603011 | Qualitative Analytical chem. | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603012 | Inorganic -1 | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603013 | Cytology | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603014 | Laboratory safety | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBABb3 | Human and Democracy | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB1102 | Arabic Language | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

| *Program skills Outline* | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | *Required program learning outcomes* | | | | | | | | | | | | | | | |
| *Year/Level* | *Course Code* | *Course Name* | *Basic or optional* | *Knowledge* | | | | *Skills* | | | | *Ethics* | | | | *Other skills related to employability and personal development* | | | |
| | | | | $A_1$ | $A_2$ | $A_3$ | $A_4$ | $B_1$ | $B_2$ | $B_3$ | $B_4$ | $C_1$ | $C_2$ | $C_3$ | $C_4$ | $D_1$ | $D_2$ | $D_3$ | $D_4$ |
| **The first stage, Course (2), according to the Bologna system** | UOBAB0603021 | **Volumetric Analytical chem.** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603022 | **Inorganic -2** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603023 | **Mathematics** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603024 | **Physics Sciences** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603025 | **Computers Program** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | UOBAB0603026 | **English Language** | Basic | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |