دليل وصف البرنامج الأكاديمي

مسار بولونيا

قسم علم الارض

كلية العلوم / جامعة بغداد

٢٠٢٤ _ ٢٠٢٥

١. رؤية البرنامج

رؤى قسم علم الأرض:

- الريادة والتميز في تخصصات علوم الارض ورفد سوق العمل بكفاءات علمية تتناغم مع التطورات التقنية والمعرفة الحديثه.

٢. رسالة البرنامج

رسالة قسم علم الارض:

- تتمثل رسالة البرنامج الاكاديمي لقسم علم الارض في تجهيز خريجين محترفين قادرين على البحث العلمي في مجالات علوم الأرض و بما يتوافق مع متطلبات سوق العمل وتخريج متخصصين ذوي قدرة وكفاءة يمتازون بالمهنية العالية والقدرة على القيادة والعمل الجماعي من خلال تزويدهم بالمعرفة والمهارات اللازمة وبما يحقق خدمة المجتمع فضلا عن تحضير واعداد جيولوجيين يمتازون بمستوى عال من التعليم وبما يحقق تكاملا مابين المعرفة النظرية والتطبيقية ضمن مفهوم التنمية المستدامة وبما يحقق الرؤية الوطنية.

٣. اهداف البرنامج

اهداف قسم علم الأرض:

يمكن ايجاز أهداف البرنامج الاكاديمي لقسم علم الارض في النقاط التالية:

١. اعداد خريجين قادرون على مواكبة التطورات المحلية والعالمية وبما يتلائم مع سوق العمل.
٢. تبني طرائق التدريس الحديثة والمعاصرة لتحقيق الاهداف التعليميه المنشودة مثل استخدام طرق العصف الذهني والتعليم المتمايز والتغذية الراجعة وبما ينمي التفكير الابداعي لدى الطالب.
٣. التشجيع على صقل وتطوير المهارات والمواهب اللاصفية لدى الطلبة فضلا عن تشجيع العمل التطوعي والجماعي.
٤. تطوير وتحديث مناهج الدراسات الاولية والعليا لمختلف تخصصات علم الارض لمواكبة معايير التنافس العالمي.
٥. تشجيع البحث العلمي ودعمه ولمختلف تخصصات الجيولوجيا ونشر النتاجات العلمية ضمن المستوعبات العالمية الرصينة فضلا عن تسويق البحوث التطبيقية.
٦. الارتقاء بقسم علم الارض من خلال الحصول على الاعتماد الاكاديمي البرامجي التخصصي.
٧. اقامه الندوات والمؤتمرات العلمية والأنشطة العلمية الأخرى في القسم وبشكل دوري لزيادة ثقة طلبة الدراسات الاوليه والعليا باختصاصهم واطلاعهم بأهميته في ضوء اهتمام المؤسسات العلمية المتخصصة بهذا التخصص.
٨. توفير فرص التدريب الحقلي من خلال السفرات الحقليه للطلبة مع اساتذتهم وتعريف الطلبة بأماكن عملهم في المؤسسات من خلال التدريب الصيفي في الموسسات الحكومية وبما يحقق مفهوم الشراكة والتعاون مع مؤسسات الدولة.
٩. تشجيع التعاون الاكاديمي لتخصصات علم الأرض مع مجالات أخرى مثل الفيزياء، الكيمياء، وعلم الأحياء، والطب والعلوم البيئية والفلك والهندسة مما يساهم في تطوير أبحاث متعددة التخصصات تصب في خدمة المجتمع.

٤. الاعتماد البرامجي

- يعمل قسم علم الأرض حالياً على استكمال متطلبات الاعتماد البرامجي وفق معايير وزارة التعليم العالي والبحث العلمي في العراق، وبالتنسيق مع وحدة ضمان الجودة والأداء الجامعي في كلية العلوم، جامعة بغداد. ويسعى القسم إلى تطوير خططه الدراسية، وتحديث مناهجه الأكاديمية، وتعزيز إمكانياته البحثية والتعليمية بما يتوافق مع معايير الاعتماد الوطني والعالمي، وذلك بهدف تحقيق التميز الأكاديمي وضمان جودة التعليم بما يخدم سوق العمل ومتطلبات التنمية المستدامة.

٥. المؤثرات الخارجية الاخرى

- تدريب صيفي، زيارات ميدانية، دورات تدريبية، بحوث علمية، مختبرات، مكتبة، سفرات حقلية.

٦. هيكلية البرنامج

هيكل البرنامج	عدد المقررات	وحدة دراسية	النسبة المئوية	ملاحظات*
متطلبات المؤسسة	9	17	10%	
متطلبات الكلية	5	20	12%	
متطلبات القسم	37	132	78%	
التدريب الصيفي	2	-	-	

اخرى	-	-	-	

٧. وصف البرنامج

السنة / المستوى	رمز المقرر	اسم المقرر	الساعات المعتمدة	
			نظري	عملي
المرحلة الأولى – الفصل الاول	GEO1101	الجيولوجيا الطبيعية	٢	٣
	GEO1102	علم البلورات	٢	٣
	GEO1103	الكيمياء	٢	٣
	UOB102	اللغة الانكليزية ١	٢	/
	UOB103	مهارات حاسوب اساسية ١	١	٢
	UOB104	ديمقراطية وحقوق الانسان	٢	/
المرحلة الأولى – الفصل الثاني	GEO1204	الجيولوجيا التاريخية	٢	٣
	GEO1205	علم المعادن	٢	٣
	GEO1206	الفيزياء العامة	٢	٣
	GEO1207	الرياضيات	٢	/
	UOB101	اللغة العربية ١	٢	/
المرحلة الثانية – الفصل الاول	GEO2308	متحجرات لافقارية ١	٢	٣
	GEO2309	بصرية المعادن	٢	٣
	GEO2310	جيولوجيا تركيبية ١	٢	٣
	GEO2311	علم اشكال الارض	٢	٣
	UOB206	اللغة الانكليزية ٢	٢	/
	UOB207	مهارات حاسوب اساسية ٢	١	٢
	UOB208	جرائم نظام البعث في العراق	٢	/
المرحلة الثانية – الفصل الثاني	GEO2412	متحجرات لافقارية ٢	٢	٣
	GEO2413	علم الصخور	٢	٣
	GEO2414	جيولوجيا تركيبية ٢	٢	٣
	GEO2415	تحسس نائي	٢	٣
	GEO2416	علم الرسوبيات	٢	٣
	GEO2417	احصاء	٢	/
	UOB205	اللغة العربية ٢	٢	/

٨. مخرجات التعلم المتوقعة للبرنامج

أ. الاهداف المعرفية

١- الفهم الشامل للنظريات الجيولوجية الأساسية ٢- تحليل الخصائص الفيزيائية والكيميائية للصخور والمعادن ٣- تطبيق المعرفة الجيولوجية في حل المشكلات البيئية والصناعية ٤- استخدام التقنيات الحديثة في البحث الجيولوجي	**بيان نتائج التعلم:** • إكساب الطالب المعرفة العلمية المتعمقة في نظريات نشأة الأرض، وتطورها، وتركيبها الداخلي، والعمليات الجيولوجية مثل التكتونية، البركانية، والرسوبية. • فهم العلاقة بين الظواهر الجيولوجية والزمن الجيولوجي، بما في ذلك القدرة على قراءة الخرائط الجيولوجية وتفسيرها. • تمكين الطالب من تحديد وتصنيف المعادن والصخور (النارية، الرسوبية، المتحولة) بناءً على خصائصها الفيزيائية والكيميائية، باستخدام الأدوات المخبرية والتقنيات التحليلية. • فهم عمليات تكوُّن الموارد الطبيعية (مثل النفط، المياه الجوفية، والخامات المعدنية) وآليات استدامتها. • تحليل المشكلات البيئية مثل التلوث، التصحر، والكوارث الطبيعية (كالزلازل والفيضانات) من منظور جيولوجي. • تطبيق المعرفة الجيولوجية في مجالات الاستكشاف الجيوفيزيائي، جيولوجيا النفط، والهندسة الجيوتقنية بما يخدم القطاعات الصناعية. • إتقان استخدام الأدوات التكنولوجية الحديثة، مثل نظم المعلومات الجغرافية (GIS)، الاستشعار عن بُعد، والبرمجيات الجيولوجية، في جمع وتحليل البيانات. • تطبيق المنهج العلمي في إجراء البحوث الميدانية والمخبرية، وتحليل النتائج وتفسيرها وفق الأطر النظرية والعملية.
ب. الاهداف المهاراتية	
١- مهارات العمل الميداني والمسوحات الجيولوجية ٢- مهارات التحليل المخبري والتقني ٣- مهارات حل المشكلات واتخاذ القرار ٤- مهارات التكنولوجيا الرقمية والبرمجيات الجيولوجية	بيان نتائج التعلم : ١. إتقان إجراء المسوحات الجيولوجية الميدانية، بما في ذلك: a. جمع العينات الصخرية والترسبات. b. قراءة الخرائط الطبوغرافية والجيولوجية واستخدام البوصلة الجيولوجية. c. توثيق الظواهر الجيولوجية (الطبقات، الفوالق، الطيات) بدقة. ٢. القدرة على تحليل البيانات الميدانية وتقديم تقارير علمية واضحة. a. استخدام الأجهزة المخبرية المتخصصة مثل: b. المجاهر البتروغرافية لتحليل الصخور والمعادن. c. أجهزة التحليل الكيميائي مثل XRD ، XRF لتحديد التركيبات المعدنية. d. تطبيق التقنيات الجيوفيزيائية (كالسونار، الجاذبية، المغناطيسية) في استكشاف الموارد الطبيعية. ٣. تحليل المشكلات الجيولوجية المعقدة (مثل تلوث المياه، مخاطر الزلازل، انهيارات المنحدرات) واقتراح حلول عملية. a. تقييم المخاطر الجيولوجية في المشاريع الهندسية (السدود، الأنفاق، حقول النفط) باستخدام منهجيات علمية. b. اتخاذ قرارات مستنيرة في عمليات الاستكشاف والإدارة المستدامة للموارد الطبيعية. ٤. إتقان برامج نظم المعلومات الجغرافية (**GIS**) والاستشعار عن بُعد لتحليل البيانات المكانية. a. استخدام البرامج الجيولوجية المتخصصة مثل **Petrel**، **Surfer**، **RockWorks**لنمذجة الطبقات الجيولوجية وتخزين البيانات. b. تحليل البيانات الإحصائية والجيولوجية باستخدام أدوات مثل **Python**أو **MATLAB**حسب متطلبات البرنامج
ج. الاهداف الوجدانية والقيمية	

١- تعزيز الوعي البيئي والمسؤولية تجاه الموارد الطبيعية ٢- الالتزام بأخلاقيات المهنة العلمية والعملية ٣- تعزيز روح العمل الجماعي والقيادة المسؤولة ٤- الانتماء الوطني والإسهام في التنمية المستدامة	بيان نتائج التعلم : • غرس الشعور بالمسؤولية تجاه الحفاظ على الموارد الطبيعية (المياه، النفط، المعادن) واستدامتها للأجيال القادمة. • تعميق الفهم بأهمية التوازن البيئي ودور الجيولوجي في مواجهة التحديات مثل التصحر، التلوث، وتغير المناخ. • تطبيق مبادئ النزاهة والدقة في جمع البيانات الجيولوجية وتحليلها (مثل عدم تزوير العينات أو النتائج). • احترام قواعد السلامة الميدانية والمخبرية، وحماية الزملاء والمجتمع من المخاطر المحتملة. • الالتزام بمعايير الشفافية في تقارير تقييم الموارد الطبيعية (خاصة في قطاع النفط والتعدين).

٩.استراتيجيات التعليم والتعلم

تنفذ برامج الجيولوجيا في الجامعات عادة بتبني استراتيجيات وطرائق تعليمية متعددة لضمان فعالية العملية التعليمية وتحقيق أهداف التعلم. من بين هذه الاستراتيجيات والطرائق:

١. المحاضرات التفاعلية :تتيح المحاضرات التفاعلية للطلاب المشاركة الفعالة في العملية التعليمية من خلال النقاشات والتبادلات مع المدرس وبين الطلاب أنفسهم. يتم توجيه الطلاب لطرح الأسئلة والمشاركة في حل المشكلات المعقدة.
٢. الدروس العملية والمختبرية :يتم تنظيم جلسات عملية في المختبرات والميدان لتعزيز الفهم العملي للمفاهيم الجيولوجية، حيث يتمكن الطلاب من التفاعل مع العينات الجيولوجية والبيانات الجيوفيزيائية.
٣. الدراسات الحالة والمشاريع البحثية :توفر الدراسات الحالة والمشاريع البحثية للطلاب فرصة لتطبيق المفاهيم النظرية على حالات واقعية، مما يعزز فهمهم للتحديات الجيولوجية وتطوير مهاراتهم في البحث والتحليل.
٤. الاستخدام الفعّال للتكنولوجيا في التعليم :يتضمن ذلك استخدام الوسائط المتعددة مثل الفيديوهات التعليمية والمحاكاة الحاسوبية وبرامج الجيوماتكس لتوفير تجارب تعلم تفاعلية وشيقة.
٥. المناقشات والورش العملية :يتم تنظيم جلسات مناقشة وورش عمل حيث يتمكن الطلاب من تبادل الأفكار والآراء وحل المشكلات الجيولوجية المعقدة معًا، مما يساعدهم على بناء مهارات التفكير النقدي وحل المشكلات.
٦. التقييم التشخيصي والتفاعلي :يتم تطبيق أساليب التقييم التشخيصي المستمرة لقياس تقدم الطلاب وفهمهم، مع توفير ردود فعل بناءة تساعدهم على تحسين أدائهم وتعزيز فهمهم.
٧. التعلم التعاوني :يشجع هذا النوع من التعلم على التعاون بين الطلاب في مجموعات صغيرة لحل المشكلات وإكمال المشاريع، مما يعزز التفاعل الاجتماعي ويعزز الفهم المتبادل للمواد الدراسية.

١٠. طرائق التقييم

ادناه بعض الطرق المشتركة للتقييم وتنفيذها في جميع مراحل برنامج الجيولوجيا بشكل عام:

١. التقييم التشخيصي:
   - يتم استخدام هذا النوع من التقييم في المرحلة الأولية لتحديد مستوى المعرفة والمهارات لدى الطلاب قبل بدء الدراسة.
   - يشمل التقييم التشخيصي اختبارات قصيرة وأسئلة استبيانية ومقابلات شخصية.
٢. التقييم الشكلي:
   - يتم تنفيذ التقييم الشكلي خلال فترات محددة خلال الفصل الدراسي، ويهدف إلى تقييم تقدم الطلاب في المواد المختلفة.
   - يشمل هذا النوع من التقييم الاختبارات والواجبات والمشاريع القصيرة.
٣. التقييم المتواصل:
   - يتم تنفيذ التقييم المتواصل على مدار الفصل الدراسي بشكل مستمر لتقدير تطور الطلاب في الفهم والمهارات.
   - يتضمن هذا النوع من التقييم مشاركة الطلاب في النقاشات الصفية، والأنشطة الجماعية، وتقديم التقارير، والمشاريع الفصلية.
٤. التقييم النهائي:
   - يتم تنفيذ التقييم النهائي في نهاية الفصل الدراسي أو في نهاية الوحدة الدراسية، ويهدف إلى تقييم الفهم الشامل للمواد.
   - يشمل هذا النوع من التقييم الاختبارات النهائية والمشاريع الكبيرة والأبحاث المنفردة.
٥. التقييم الذاتي:
   - يشجع التقييم الذاتي الطلاب على تقييم أدائهم وفهمهم للمواد، ويمكن أن يكون جزءًا من عملية التقييم المستمر.
   - يمكن للطلاب استخدام مفاهيم مثل الملاحظة الذاتية وتقديم التقارير الشخصية لتقييم تقدمهم وتحديد نقاط القوة والضعف.
٦. التقييم بالمشاركة:

- يتضمن التقييم بالمشاركة تقييم أداء الطلاب خلال المناقشات الصفية والورش العمل والمشاريع الجماعية.
- يركز هذا النوع من التقييم على مستوى المشاركة والتفاعل والتعاون بين الطلاب.

١١. الهيئة التدريسية

اعضاء هيئة التدريس

الرتبة العلمية	التخصص		المتطلبات/المهارات الخاصة (ان وجدت)		اعداد الهيئة التدريسية	
	عام	خاص			ملاك	محاضر
ا.د. سلام اسماعيل مرهون	جيولوجي	طبقات ومتحجرات			٥٣	
ا.د. أياد علي حسين علي	جيولوجي	طبقات ومتحجرات				
ا.د. حامد حسن عبدالله	جيولوجي	جيولوجيا هندسية				
ا.د. صالح محمد عوض	علم الأرض	جيوكيمياء				
ا.د. علي مكي حسين الرحيم	جيولوجيا	جيوفيزياء				
ا.د. قصي ياسين سلمان	جيولوجيا	موارد مائيه				
ا.د. كمال كريم علي	جيولوجي	جيوفيزياء				
أ.د. منال شاكر علي	جيولوجي	جيولوجي				
ا.م. لؤي سمير شاكر	جيولوجي	متحجرات				
ا.م.د. أفراح حسن صالح	جيولوجي	طبقات و متحجرات				
ا.م.د. براق عدنان حسين	علم الارض	جيولوجيا النفط				
ا.م.د.انعام جمعة عبدالله	جيولوجي	جيوكيمياء				
ا.م.د. سحر يونس جاسم	جيولوجي	متحجرات عضوية				
ا.م.د. فراس مظفرعبد الحسين	جيولوجي	جيوكيمياء				
ا.م.د. محمود عبد الامير سلمان	علم الارض	الجيولوجيا التركيبية				
ا.م.د. مرتضى جبار عيسى	جيولوجي	جيوكيمياء				
ا.م.د. ميسون عمر علي	جيولوجي	صخور ومعادن				
ا.م.د. نجاح عبد الحسن عبد	جيولوجي	جيوفيزياء/سايزمولوجي				
أ.م.د. مصطفى علي حسن	جيولوجي	هيدروجيوكيمياء				
أ.م.د. اثير عيدان خليل	علم الأرض	جيومورفولوجي وتركيبية و تحسس نائي				
أ.م.د. ثائر ثامر الطيف	جيولوجي	الجيولوجيا الهندسية				
أ.م.د. أسامة سعد صاحب	جبولوجي	جيوفيزياء				
أ.م.د. مؤيد جاسم رشيد	جيولوجيا	جيومورفولوجيا				
م.د. احمد كاظم عبيد	جيولوجي	جيولوجيا تكتونية				
م.د. انوار كاظم موسى	جيولوجي	طبقات و متحجرات				
م.د. ايمان احمد محمد	جيولوجي	موارد مائية				

م.د. ثامر عبدالله مهدي	جيولوجي	طبقات بتطبيقات نفطية				
م.د. جنان منصور كورئيل	علوم الجيولوجيا	الجيولوجيا التركيبية				
م.د. حارث اسماعيل مصطاف	جيولوجيا	صخور ومعادن				
م.د. ياسمين خضير ابراهيم	جيولوجي	متحجرات				
م.د. رشا فوزي فيصل	علم الارض	جيولوجيا النفط				
م.د. رنا عباس علي	جيولوجيا	جيوكيمياء				
م.د. زينب ضمد حسن	جغرافية طبيعية	جيومورفولوجي وتحسس نائي				
م.د. صفاء اديب صالح	جيولوجي	صخور ومعادن				
م.د. عماد جاسم محمد	علوم حاسبات	شبكات				
م.د. عمر فتيان رشيد	علوم حاسبات	امنية شبكات				
م.د. لميس نزار عبد الكريم	جيولوجيا	جيوفزياء زلزاليه				
م.د. حسن كطوف جاسم	علم الارض	صخور ومعادن				
م.د. محمد حسن ناصر	الجيولوجيا	الجيولوجيا الهندسية				
م.د. هبة سعدون محسن	علم الارض	جيولوجيا النفط				
م.د. هند فاضل عبدالله	علم الارض	موارد مائية				
م.د. لمى جاسم محمد	علم الارض	نفط ومكامن				
م.د. لقاء فالح عودة	لغة عربية	لغة عربية				
م. شذى فتحي حسن	علم الارض	جيولوجيا هندسية				
م.م. حادي سالم عبيد	علم الارض	موارد مائية / مياه جوفية				
م.م. عبدالله عادل ابراهيم	حاسبات	حاسبات				
م.م. ليث صباح عبدعلي	علم الارض	جيوفيزياء				
م.م. ايه علي حميد	علم الارض	جيولوجيا تركيبية				
م.م. نعم عمر فرحان	علم الارض	جيوكيمياء				
م.م. انسام حسن رشيد	علم الارض	جيوفيزياء				
م.م. سالي حسين احمد	علم الارض	تركيبية وتحسس نائي وجيومورفولوجي				
م.م. زهراء اياد هادي	علم الارض	جيوكيمياء				
م.م. اسماء عباس حميد	فلك وفضاء	فلك وفضاء				

١٢. التطوير المهني

توجيه اعضاء هيئة التدريس الجدد

عملية توجيه أعضاء هيئة التدريس الجدد والزائرين والمتفرغين وغير المتفرغين على مستوى المؤسسة والقسم تشمل الخطوات التالية بإيجاز:

١. توفير التعريف بالمؤسسة والقسم :يتم تقديم مقدمة شاملة حول المؤسسة وبيئتها التعليمية وأهدافها وقيمها المؤسسية، بالإضافة إلى

توضيح دور القسم في تحقيق هذه الأهداف.

٢. توجيه حول السياسات والإجراءات :يتم شرح السياسات والإجراءات الإدارية والأكاديمية المتعلقة بالتدريس والبحث والخدمة المجتمعية، بما في ذلك إجراءات التقييم والترقيات والتعامل مع الطلاب وغيرها.

٣. تقديم الدعم الأكاديمي والتعليمي :يتم توفير الدعم والتوجيه حول تطوير المناهج وتصميم الدروس واستخدام التكنولوجيا التعليمية وتطبيق أساليب التدريس الحديثة.

٤. تعريف بالموارد المتاحة :يتم إلقاء الضوء على الموارد المتاحة لأعضاء هيئة التدريس، مثل المكتبات والمختبرات والمرافق البحثية وفرص التمويل والتدريب المستمر.

٥. التوجيه الاجتماعي والثقافي :يشمل ذلك توجيه حول الحياة الجامعية والثقافية والاجتماعية في المؤسسة والمجتمع المحلي، بما في ذلك الفعاليات الثقافية والرياضية والاجتماعية.

٦. توفير فرص التواصل والشبكات الاجتماعية :يشجع على بناء شبكات التواصل والتعاون بين أعضاء هيئة التدريس الجدد والحاليين والطلاب والموظفين الإداريين لتعزيز التواصل وتبادل الخبرات.

التطوير المهني لأعضاء هيئة التدريس

خطة وترتيبات التطوير الأكاديمي والمهني لأعضاء هيئة التدريس تتضمن العديد من العناصر الرئيسية:

١. تقديم ورش عمل ودورات تدريبية :يتم تنظيم ورش عمل ودورات تدريبية تهدف إلى تطوير مهارات أعضاء هيئة التدريس في مجالات التدريس والتعلم الحديثة، مثل تكنولوجيا التعليم وتقنيات التقويم والتدريس النشط.

٢. التوجيه الفردي والمراجعة النقدية :يتم تقديم جلسات توجيه فردية ومراجعة نقدية لأداء أعضاء هيئة التدريس مع مراعاة تطوير نقاط القوة ومعالجة الضعف وتحديد فرص التحسين.

٣. المشاركة في مؤتمرات وندوات :يشجع أعضاء هيئة التدريس على المشاركة في المؤتمرات وورش العمل والندوات المحلية والدولية لتبادل الخبرات والأفكار والاستفادة من التجارب الجديدة.

٤. البحث والنشر العلمي :يتم تشجيع أعضاء هيئة التدريس على الاستمرار في البحث العلمي ونشر النتائج في المجلات العلمية المحكمة، مما يعزز تطويرهم المهني ويساهم في رفع مستوى التعليم.

٥. المشاركة في أنشطة الخدمة المجتمعية :يُشجع أعضاء هيئة التدريس على المشاركة في أنشطة الخدمة المجتمعية والتعاون مع المؤسسات الخارجية، مما يساهم في توسيع دائرة تأثيرهم وتعزيز تطويرهم المهني.

٦. التقييم المستمر والتغذية الراجعة :يتم تقديم تقييم مستمر لأداء أعضاء هيئة التدريس مع تقديم التغذية الراجعة بانتظام لمساعدتهم على تحسين أدائهم وتطوير مهاراتهم.

٧. توفير الدعم الفني والاستشاري :يتم توفير الدعم الفني والاستشاري لأعضاء هيئة التدريس في مجالات مختلفة مثل التصميم التعليمي وتطوير المناهج واستخدام التكنولوجيا في التعليم.

١٣. معيار القبول

معيار القبول في الكلية يتضمن عادة مجموعة من الأنظمة والإجراءات المتعلقة بالتقديم والالتحاق:

١. المتطلبات الأكاديمية :تشمل هذه المتطلبات المؤهلات الأكاديمية اللازمة للالتحاق بالكلية، مثل الشهادة الثانوية أو ما يعادلها، والنتائج الأكاديمية السابقة.
٢. النموذج الطلابي :يجب على المتقدمين تقديم نموذج طلابي يتضمن المعلومات الشخصية والأكاديمية وأي معلومات إضافية مطلوبة.
٣. المعايير الصحية والسلوكية :قد تشمل القواعد المدرسية أو الجامعية معايير صحية وسلوكية يجب على المتقدمين الالتزام بها.
٤. المواعيد النهائية للتقديم :تحدد المؤسسة أو الكلية مواعيد نهائية لتقديم طلبات الالتحاق، ويجب على المتقدمين الالتزام بها.
٥. الرسوم الدراسية والمساعدات المالية :يتعين على المتقدمين فهم الرسوم الدراسية والخيارات المتاحة للمساعدات المالية أو القروض الدراسية.

١٤. اهم مصادر المعلومات عن البرنامج

أهم مصادر المعلومات حول البرنامج الأكاديمي في قسم الجيولوجي بكلية العلوم في جامعة بغداد تشمل:

١. الموقع الإلكتروني للجامعة:
- يوفر موقع الجامعة معلومات شاملة حول البرامج الأكاديمية المتاحة والمتطلبات اللازمة للتقديم والالتحاق بكلية العلوم، بما في ذلك الجيولوجيا.

٢. موقع الكلية على الإنترنت:
- يحتوي موقع الكلية على معلومات مفصلة حول برنامج الجيولوجيا، مثل الخطط الدراسية، والمتطلبات، والمساقات المقدمة.

٣. كتيب البرنامج الأكاديمي:
- يتم توفير كتيب البرنامج الأكاديمي للجيولوجيا، الذي يحتوي على معلومات تفصيلية حول المناهج والمتطلبات والفرص الأكاديمية.

٤. زيارة الحرم الجامعي:
- يمكن للطلاب المهتمين بالالتحاق ببرنامج الجيولوجيا زيارة الحرم الجامعي والتحدث مع مسؤولي القسم وأعضاء هيئة التدريس والطلاب الحاليين للحصول على معلومات إضافية.

٥. التواصل المباشر:
- يمكن للطلاب التواصل المباشر مع إدارة القسم أو المستشارين الأكاديميين لطلب المعلومات الإضافية والإجابة عن الاستفسارات.

٦. المواقع الاجتماعية:
- قد يوفر حسابات وسائل التواصل الاجتماعي للجامعة أو الكلية معلومات مفيدة وآراء للطلاب الحاليين حول البرنامج الأكاديمي.

٧. المنتديات الطلابية:
- يمكن للطلاب البحث في المنتديات الطلابية عبر الإنترنت للحصول على تجارب وآراء الطلاب السابقين والحاليين حول برنامج الجيولوجيا.

١٥. خطة تطوير البرنامج

الرؤية:

أن يكون قسم الجيولوجي رائدًا في مجال تعليم وبحث الجيولوجيا على المستوى الوطني والإقليمي، وأن يساهم في تخريج خريجين متميزين يسهمون في تطوير مجتمعنا وفهم العالم الطبيعي.

الأهداف:

١. تحديث المناهج الدراسية:
- مراجعة وتحديث المناهج الدراسية لتواكب التطورات العلمية والتكنولوجية في مجال الجيولوجيا.
- إضافة مواد دراسية جديدة تعكس التحديات والاحتياجات الحالية في مجال الجيولوجيا.

٢. تعزيز التجارب العملية:
- توفير المزيد من الفرص للتعلم العملي من خلال رحلات ميدانية، وورش عمل، وتجارب مختبرية متقدمة.
- الاستثمار في تقنيات الواقع الافتراضي والواقع المعزز لتعزيز تجربة التعلم.

٣. تعزيز البحث العلمي:
- توفير الدعم المالي والموارد للبحوث العلمية في مجالات الجيولوجيا المختلفة.
- تشجيع أعضاء هيئة التدريس والطلاب على المشاركة في المؤتمرات ونشر الأبحاث في المجلات العلمية.

٤. تعزيز التواصل مع الصناعة:
- تطوير شراكات مع شركات ومؤسسات القطاع الخاص لتوفير فرص تدريب وتوظيف للطلاب.
- تنظيم ندوات وورش عمل بالتعاون مع الصناعة لتبادل المعرفة وتعزيز التواصل.

٥. تطوير المهارات الشخصية والاجتماعية:
- توفير برامج تدريبية تهدف إلى تطوير المهارات الشخصية مثل القيادة والاتصال وحل المشكلات.
- تعزيز العمل الجماعي والتفاعل الاجتماعي من خلال مشاريع تعاونية وأنشطة ثقافية واجتماعية.

الإجراءات المقترحة:

١. إنشاء لجنة تطوير أكاديمي مكلفة بتنفيذ الخطة ومتابعة التقدم.
٢. تشكيل فرق عمل متخصصة لتحديث المناهج وتقديم التوصيات.
٣. توفير التدريب المستمر لأعضاء هيئة التدريس حول أحدث الأساليب التعليمية والبحثية.
٤. إطلاق حملات تسويقية لجذب الطلاب الموهوبين والمهتمين بالجيولوجيا.
٥. توفير برامج دعم أكاديمي للطلاب لتعزيز نجاحهم الأكاديمي ومساعدتهم في تحقيق أهدافهم المهنية

خطط مهارات المنهج

وضع اشارة في المربعات المقابلة لمخرجات التعلم الفردية من البرنامج الخاضعة للتقييم																			
			مخرجات التعلم المطلوبة من البرنامج																
السنة / المستوى	رمز المقرر	اسم المقرر	أساسي أم اختياري	الاهداف المعرفية				الاهداف المهاراتية						الاهداف الوجدانية والقيمية					
				أ١	أ٢	أ٣	أ٤	ب١	ب٢	ب٣	ب٤	ج١	ج٢	ج٣	ج٤				
المرحلة الأولى - الفصل الاول	GEO1101	الجيولوجيا الطبيعية	اساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO1102	علم البلورات	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO1103	الكيمياء	أساسي																
	UOB102	اللغة الانكليزية ١	ساند																
	UOB103	مهارات حاسوب اساسية ١	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	UOB104	ديمقراطية وحقوق الانسان	ساند																
المرحلة الأولى - الفصل الثاني	GEO1204	الجيولوجيا التاريخية	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO1205	علم المعادن	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO1206	الفيزياء العامة	أساسي																
	GEO1207	الرياضيات	أساسي																
	UOB101	اللغة العربية ١	ساند																
المرحلة الثانية – الفصل الاول	GEO2308	متحجرات لافقارية ١	اساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO2309	بصرية المعادن	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO2310	جيولوجيا تركيبية ١	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO2311	علم اشكال الارض	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	UOB206	اللغة الانكليزية ٢	ساند																
	UOB207	مهارات حاسوب اساسية ٢	اساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	UOB208	جرائم نظام البعث في العراق	ساند																
المرحلة الثانية – الفصل الثاني	GEO2412	متحجرات لافقارية ٢	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO2413	علم الصخور	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO2414	جيولوجيا تركيبية ٢	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO2415	تحسس نائي	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO2416	علم الرسوبيات	أساسي	√	√	√	√	√	√	√	√	√	√	√	√				
	GEO2417	احصاء	أساسي																
	UOB205	اللغة العربية ٢	ساند																

Module Information معلومات المادة الدراسية			
Module Title	**Physical Geology**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO1101**		
ECTS Credits	**9.00**		
SWL (hr/sem)	**225**		
Module Level	**UGI**	**Semester of Delivery**	**One**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr. Mustafa Ali Hassan**	**e-mail**	**Dr.musstafali@gmail.com**
Module Leader's Acad. Title	**Assistant Professor**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**Dr. Mohammad Hassan**	**e-mail**	**Mohammad Hassan @sc.uobaghdad.edu.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**GEO-1204**	**Semester**	**Two**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**١. Physical geology is defined as one of the branches of earth science that specializes in the study of the solid, non-living features of the planet Earth and other planets. It is done by studying the various rocks, minerals and materials that formed the earth and the processes related to it through time, and employing scientific tools and combined techniques to find out the approximate ages of the rocks on and in the earth's interior, and using this information to determine the history of the earth and the terres it passed through.** **٢. Providing students with an appropriate amount of information and expertise in the field of geoscience in a functional manner that contributes to the acquisition of a scientific culture and contributes to academic preparation and helps them to identify the natural resources in their country**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**١. Gaining the ability and skill in field interpretation and deduction.** **٢. Acquiring the skill of distinguishing between different geological features.** **٣. Dealing with the basic laws of various earth sciences.** **٤. Using the principle of the past is key to the present**

Indicative Contents **المحتويات الارشادية**	١. **Physical geology is defined as one of the branches of earth science that specializes in the study of the solid, non-living features of the planet Earth and other planets. It is done by studying the various rocks, minerals and materials that formed the earth and the processes related to it through time, and employing scientific tools and combined techniques to find out the approximate ages of the rocks on and in the** ٢. **earth's interior, and using this information to determine the history of the earth and the terres it passed through.** ٣. **Providing students with an appropriate amount of information and expertise in the field of geoscience in a functional manner that contributes to the acquisition of a scientific culture and contributes to academic preparation and helps them to identify the natural resources in their country** ٤. **Gaining the ability and skill in field interpretation and deduction.** ٥. **Acquiring the skill of distinguishing between different geological features.** ٦. **Dealing with the basic laws of various earth sciences.** ٧. **Using the principle of the past is key to the present**
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	١. **Fieldwork and Hands-on Experience. Hands-on experience allows students to develop observational skills, make connections between theoretical concepts and real-world examples, and enhance their understanding of stratigraphic principles.** ٢. **Visual Aids: Utilize visual aids, such as diagrams, charts, maps, and photographs, to help students visualize and comprehend stratigraphic concepts. Use geological maps to demonstrate the distribution and relationships between different rock units and incorporate stratigraphic columns to illustrate the vertical succession of strata.** ٣. **Virtual Resources: Take advantage of virtual resources, such as interactive online modules, virtual field trips, and digital simulations. These resources can provide students with immersive experiences, allowing them to explore stratigraphic principles and study geological features virtually.** ٤. **Case Studies and Real-life Examples** ٥. **Laboratory Work: Conduct laboratory exercises that involve the description and interpretation of rock samples, including the identification of lithology, sedimentary structures, and fossil content. Encourage students to create stratigraphic logs or cross-sections based on the laboratory data, promoting critical thinking.** ٦. **Collaborative Learning: Foster collaborative learning environments where students can work in groups or pairs to solve problems, analyze data, or interpret stratigraphic information. This approach encourages active engagement, promotes discussions, and allows students to learn from one another's perspectives and insights.** ٧. **Multimedia Resources: Incorporate multimedia resources, such as videos, animations, and online lectures, to supplement traditional teaching methods. Multimedia resources can help reinforce key concepts, illustrate geological processes, and provide additional visual and auditory learning opportunities.** ٨. **Continuous Assessment and Feedback: Implement regular assessments,**

	such as quizzes, assignments, or class discussions, to gauge student understanding and provide timely feedback. This allows students to monitor their progress, identify areas of improvement, and reinforces learning.

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**145**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**9**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**225**		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction- physical geology
Week 2	The importance of geology A brief summary of history of geology
Week 3	Branches of the geology Relationship between geology and other sciences
Week 4	The earth and the Solar System
Week 5	Crystals and crystallography(Crystals: (Introduction, Lattices Crystal,Crystals properties)
Week 6	Crystal symmetry, Elements of symmetry, Crystallographic axes, Crystal systems, System of the crystals)
Week 7	Crystals and crystallography(Crystals: (Introduction, Lattices Crystal,Crystals properties)Crystal symmetry, Elements of symmetry, Crystallographic axes, Crystal systems, System of the crystals)
Week 8	Midterm Exam
Week 9	Minerals: (Introduction, Minerals groups,Physical properties of minerals) Economic use of Minerals
Week 10	Petrology I Igneous rocks (Introduction to
Week 11	Petrology II Sedimentary rocks (Introduction to sedimentary rocks, Types of sedimentary rocks, Sedimentary environments

Week 12	**Petrology III Metamorphic rocks (Introduction to metamorphic rocks, Agents of metamorphism, Textural and mineralogical changes)**
Week 13	**Surface Water**
Week 14	**Groundwater**
Week 15	**Preparatory Week**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	**Lab 1: Crystals**
Week 2	**Lab 2: Crystals properties**
Week 3	**Lab 3: Crystal symmetry, Elements of symmetry, Crystallographic axes, Crystal systems, System of the crystals**
Week 4	**Lab 4 Crystal symmetry, Elements of symmetry, Crystallographic axes, Crystal systems, System of the crystals**
Week 5	**Lab 5: Crystal symmetry, Elements of symmetry, Crystallographic axes, Crystal systems, System of the crystals**
Week 6	**Lab 6: Physical properties of minerals**
Week 7	**Lab 7: Physical properties of minerals**
Week 8	**Midterm Exam**
Week 9	**Lab 9: Igneous rocks**
Week 10	**Lab 10: Igneous rocks**
Week 11	**Lab 11: Sedimentary rocks**
Week 12	**Lab 12: Sedimentary rocks**
Week 13	**Lab 13: Metamorphic rocks**
Week 14	**Lab 14: Metamorphic rocks**
Week 15	**Lab 15: Preparatory Week**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	**Physical Geology First University of ٢٠١٩Saskatchewan Edition, Physical geology–Laboratory manuals.**	**Yes**
Recommended Texts	**مبادئ علم االرض للدكتور سعد الدهان. 2015**	**No**
Websites		

Module Information معلومات المادة الدراسية			
Module Title	**Crystallography**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO1102**		
ECTS Credits	**9.00**		
SWL (hr/sem)	**225**		
Module Level	**UGI**	**Semester of Delivery**	**One**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr. Hasan Kattoof Jasim**	**e-mail**	**Hasan.jasim@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**GEO-1205**	**Semester**	**Two**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**١. Crystals aims to define how minerals crystallize in nature and what are the methods of crystallization that occur in nature through which minerals will be formed and these minerals will form rocks in nature Training students on how to take field models and convert them into applied products used in making geological maps.** **٢. Training students to identify the types of bodies that crystals take upon crystallization, and try to benefit from them in diagnosing minerals**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**١. Gain experience in the process of studying the shapes of crystals.** **٢. Attempting to diagnose crystal parts and crystal systems.** **٣. Training to identify the elements of symmetry in the crystal** **٤. Benefit from the study of crystallography and its use in the processes of diagnosing minerals**
Indicative Contents **المحتويات الارشادية**	**١- Crystallography aims to know how and how crystals are formed in nature** **٢- Crystallography is closely related to mineralogy, as it is considered one of the branches of mineralogy, and this science is important, especially in mineral diagnostic processes that have many applications,**

	especially in the classification of rocks, as well as the diagnosis of minerals of economic importance ٣- Crystallography has many important applications, especially in the detection and determination of crystalline and amorphous chemical substances

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	١. Identify the models of crystals that are used in the laboratory and their relationship with real crystals of minerals in nature ٢. Understand the ways in which minerals crystallize, which will vary according to the processes by which the types of igneous, sedimentary, and metamorphic rocks are formed. ٣. After understanding the crystallization processes and the different bodies and shapes of the crystals, the link is made with the crystals of natural minerals, which will be seen in field work and in nature sometimes. ٤. Absorbing and understanding crystallography will have many industrial and economic applications, as it is possible to go to what is known as industrial minerals and how to crystallize them in a laboratory.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**145**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**9**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**225**		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction to Crystallography
Week 2	Methods of Crystallization
Week 3	Form and Habits of Crystals
Week 4	Parts of Crystals

Week 5	**Symmetry of Crystals**
Week 6	**Face intercepts**
Week 7	**32 Crystal Classes**
Week 8	**Midterm Exam**
Week 9	**Triccinic and monoclinic Systems**
Week 10	**Orthorhombic and tetragonal Systems**
Week 11	**Hexagonal and Trigonal Systems**
Week 12	**Cubic System**
Week 13	**Streographic Projection of Crystals**
Week 14	**Crystal Drawings**
Week 15	**Internal Structure of Crystals**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	**Lab 1: Introduction to Crystallography**
Week 2	**Lab 2: Parts of Crystals**
Week 3	**Lab 3: Crystallographic Systems**
Week 4	**Lab 4: Symmetry of Crystals, Elements and Operation of Crystals**
Week 5	**Lab 5: Forms of Crystals**
Week 6	**Lab 6: 32 Crystal Classes**
Week 7	**Lab 7: Pinacoidal Class – Triclinic System and Prismatic Class – Monoclinic System**
Week 8	**Midterm Exam**
Week 9	**Lab 9: Orthorhombic Dipyramidal Class – Orthorhombic System**
Week 10	**Lab 10: Ditetragonal Dipyramidal Class – Tetragonal System**
Week 11	**Lab 11: Dihexagonal Dipyramidal Class – Hexagonal System**
Week 12	**Lab 12: Scalenohedral class – Trigonal System**
Week 13	**Lab 13: Hexaoctahedreal Class – Cubic System**
Week 14	**Lab 14: Hexahetraderal Class – Cubic System**
Week 15	**Lab 15: Diploidal Class – Cubic System**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	**Philip, F. C., 1971, An Introduction**	**Yes**

	to Crystallography, 4th edition, Longman Group Ltd, United Kingdom, 349P.	
Recommended Texts	**Al-Kufaishi, F, A,. and Mahmood, M, M,.1989, Crystallography, Mosul University Prints, (In Arabic), 352P.**	**Yes**
Websites	**www.Mindat.com**	

Module Information معلومات المادة الدراسية			
Module Title	**Chemistry**	**Module Delivery**	
Module Type	**B**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO1103**		
ECTS Credits	**5.00**		
SWL (hr/sem)	**225**		
Module Level	**UGI**	**Semester of Delivery**	**One**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr.Shurooq Badri Al-badri**	**e-mail**	**s.b.albadr@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Assistant professor**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	١. **Provide students with a comprehensive understanding of the fundamental principles underlying volumetric analysis and quantitative analysis methods. As well as general knowledge in bath Organic Chemistry and Biochemistry.** ٢. **Develop specialists in the field of general chemistry and its practical applications, preparing them to fulfill the country's developmental and industrial needs.** ٣. **Foster a scientifically literate generation that recognizes the value of science as a catalyst for transformative change. This includes cultivating critical thinking skills, promoting analytical thinking, and facilitating adaptability to evolving technologies and societal demands.** ٤. **Strengthen the connection between the university and society by offering advisory counseling, training programs, and professional development opportunities for faculty and staff, ensuring that academic knowledge is effectively applied to real-world contexts.** ٥. **Contribute to the country's overall progress by producing chemistry graduates who possess the skills and knowledge to actively contribute to its development.**

	٦. **Address the increasing demand for highly qualified professionals in various sectors that require specialized expertise in chemistry.** ٧. **Encourage exceptional students to serve as teaching assistants within the department, nurturing their potential to become future members of the academic teaching staff and fostering the growth of a knowledgeable and skilled workforce**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**A. Cognitive goals** **١- Introduce students to the fundamental principles of volumetric analysis and quantitative analysis methods, establishing a solid foundation in the field.** **٢- Foster an understanding of the theoretical principles and practical applications of titration, enabling students to detect both inorganic and organic compounds effectively.** **٣- Provide students with a comprehensive knowledge of volumetric analysis, with a specific focus on titration, and its extensive range of applications in various scientific disciplines.** **٤- Provide students knowledge of definition of organic chemistry, the classification of organic compounds, how to distinguish between them, and a method. As well as how given the name to organic compound.** **٥- Provide students' knowledge of biochemistry, the basic elements of life, and the structure and components of a cell.as well as the types of carbohydrates, fats, proteins and nucleic acids.** **A. The skills goals special to the program** **١- Enhance students' research skills by encouraging them to engage in scientific exploration and facilitating constructive discussions where informed opinions are shared.** **٢- Develop proficiency in the use and development of laboratory techniques and equipment, enabling students to conduct experiments effectively and obtain accurate results.** **٣- Cultivate critical thinking skills that allow students to analyze and solve scientific problems related to the laws of chemistry, promoting a deeper understanding of the subject.** **٤- Foster the development of practical skills and the ability to apply theoretical and empirical scientific knowledge gained through their studies in real-life situations, taking into account industrial and commercial constraints.**
Indicative Contents **المحتويات الارشادية**	**- The course aims to provide students with a comprehensive understanding of classical titration methods in analytical chemistry. It covers the fundamental principles of acid/base titration, complexometric titration, redox titration, and precipitation titration. Students will delve into the theory behind these methods and explore their wide-ranging applications. In addition to theoretical knowledge, the course emphasizes practical skills. Students will learn how to calculate pH values for various acids, bases, salts, and buffers, enabling them to make accurate determinations in real-world scenarios. They will also develop the ability to evaluate and interpret the results obtained from titration experiments, enhancing their analytical capabilities. Throughout the course, selected classical quantitative analytical methods will be highlighted, giving students a deeper understanding of their importance and practical use. By the end of the course, students will have gained the necessary knowledge and skills to apply classical titration methods effectively in analytical chemistry, both in theory and practice.**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- The module will be conducted using a student-centered approach, placing emphasis on active participation and the cultivation of critical thinking skills. Through a combination of classes, interactive tutorials, and purposeful experiments, students will be actively engaged in the learning process, fostering the development of their critical thinking abilities. The aim is to create an interactive and dynamic learning environment that encourages students to actively participate, think critically, and attain a profound comprehension of the subject matter. By adopting this strategy, students will have the opportunity to apply their knowledge, engage in analytical discussions, and enhance their overall learning experience.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	80	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	45	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	Material Covered
Week 1	General introduction, what is chemistry and its branches? Branches of analytical chemistry, Quantitative analysis, Qualitative analysis.
Week 2	Weight and concentration unites, Concentration, The mole, Examples, Molarity, Normality. Perce concentrations, Part per million,
Week 3	Calculations of equivalent weight, Converting of percentage to molarity. The dilute solution Preparation of solid materials solutions, Preparation of liquid materials solutions
Week 4	Chemical equilibrium, Types of equilibrium, Equilibrium constants (Ionic -product constant water. Solubility and Solubility product constant, examples, calculations.
Week 5	Dissociation of a weak acid or base, Hydrolysis constant (KH),
Week 6	Volumetric Methods of Analysis, Requirements for a primary standard, Volumetric Calculations for Acid-Base Titrations.
Week 7	Equilibrium in acid-base solutions, Calculating the pH of weak acids and base solutions, Calculating the pH of salts solutions, 1-Salt differential from strong acid and

	strong base.
Week 8	**Mid Term Exam**
Week 9	**2-Salt differential from weak acid and strong base, 3-Salt differential from strong acid and weak base, 4-Salt differential from weak acid and weak base.**
Week 10	**Buffer Solutions, Calculating the pH of Buffer solutions, Buffer capacity, Acid – Base Titration, Acid – Base Indicators, Methyl Orange, Phenolphthalein .**
Week 11	**Titrating a Weak Acid with a Strong base, Differential titration, Titration mixtures of two acids, Titration one Base or Mixture of two Bases with Strong Acid.**
Week 12	**Introduction to Organic Chemistry, and Classes of Organic compound.**
Week 13	**Chemistry of the Functional Groups (Alcohols ,Aldehydes and Ketones, and Carboxylic Acids)**
Week 14	**General introduction, in Biochemistry**
Week 15	**Preparatory Week**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	**Material Covered**
Week 1	**Learn about laboratory tools and equipment and how to use them**
Week 2	**Learn the principles of descriptive analysis and the descriptive interactions of the first group of ions**
Week 3	**A test on the analysis of information samples for the first group, based on the descriptive analysis**
Week 4	**A test on the analysis of the anonymous samples of the first group, based on the descriptive analysis**
Week 5	**Characteristic descriptive interactions of the second group ions**
Week 6	**A test on the analysis of the known samples of the second group**
Week 7	**A test on the analysis of anonymous samples of the second group**
Week 8	**Calculations of volumetric analysis, preparation of approximately (0.1N) HCI and (0.IN) sodium carbonate, Standardization of HCl solution with standard solution of Na_2CO_3.**
Week 9	**Unknown solution: Practical exam.**
Week 10	**Analysis of a mixture (sodium hydroxide + sodium carbonate)**
Week 11	**Analysis of a mixture (sodium bicarbonate + sodium carbonate)**
Week 12	**Oxidation-reduction reactions, A: Preparation of 0.1N potassium permanganate, Preparation of 0.1 N sodium oxalate ($Na_2C_2O_4$).**
Week 13	**Determination the concentration of ferrous ion.**
Week 14	**Complexometric titration, Determination of total hardness (permanent and temporary) of water**
Week 15	**Preparatory Week**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	**Fundamental of analytical chemistry by Skoog, West, Holler & Crouch, 8th , 2004.**	**Yes**
Recommended Texts	**١-Fundamental of analytical chemistry by Skoog, West, Holler, 6th , 1992.** **٢-Principles of instrumental analysis by Skoog, West, Holler & Crouch, 8th, 2004.** **3-K. Burger D, Sc, "Organic regents in metal analysis", 1st,New York, 1973.** **4- General Chemistry: The Essential Concepts 5th Edition by Raymond Chang**	
Websites	**https://www.goodreads.com/book/show/1568659.General_Chemistry**	

Module Information معلومات المادة الدراسية			
Module Title	**English Language I**	**Module Delivery**	
Module Type	**Supportive**	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**UOB102**		
ECTS Credits	**2.00**		
SWL (hr/sem)	**50**		
Module Level	**UGI**	**Semester of Delivery**	**One**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Lamees Nazar Abdulkareem**	**e-mail**	**Lames.nazar@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**UOB-237**	**Semester**	**Three**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**١. Raise the level of English language for the students, and help the student to improve their English language(speaking and writing).** **٢. Helping students to speak in English.** **٣. Training the student on writing different geologic subjects in English.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**١. Increasing the ability of student to apply what they learned from the grammar lecture in their writing.** **٢. Increasing the ability of student to apply what they learned from the grammar lecture in their speaking.** **٣. Encourage students to read and understand geologic papers in English.**
Indicative Contents **المحتويات الارشادية**	**١. Learning English Can Help student to think More Creatively** **An additional language will increase your creativity levels. In the fifth benefit on our list, we pointed out the fact learning a second language can make the brain becomes more flexible thereby making it easier to switch between different tasks, promoting creativity** **٢. Learning English Can Help studentsIn Academia** **A science-based article recently revealed that the number of scientific papers written in English is now outnumbering those written in the researcher's native language.**

	Therefore, having an understanding of the English language opens up a vast amount of knowledge that can be drawn upon during their studies.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	**- One of the primary benefits of learning English is that it is often considered the language of global business. The international business community often uses it for communication, even among people who do not speak the same native language. Speaking and understanding English can let a person more easily communicate with others and find more job opportunities not only in his or her home country, but around the world as well. There are also many professional informative publications printed in English, which means it is often an essential language for anyone working in science or research.** **- Different learning styles could be applied in the class to improve the english language for the student.** **١. Divide the students into a number of groups and choose a geologic subject to discuss in English.** **٢. Listen to different types of lectures recorded in English to improve the students listening** **٣. Ask the student to prepare a short geologic report written in English in the class to evaluate their level in writing.**

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**33**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**2**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**17**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**1**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**50**		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	**Present perfect simple** **Explain the structure of this tense and when to use it with examples**
Week 2	**Past perfect simple** **Explain the structure of this tense and when to use it with examples**

Week 3	**Words used with the present perfect** **ever, never, before**
Week 4	**Present perfect continuous** **Explain the structure of this tense and when to use it with examples**
Week 5	**Past perfect continuous** **Explain the structure of this tense and when to use it with examples**
Week 6	**Speaking lesson** **In this lecture students are divided into two groups and we discuss any geological subject in English to practice their speaking.**
Week 7	**Quantifiers:** **much/many/a lot of**
Week 8	**Midterm Exam**
Week 9	**Linking words in writing** **Define the types of linking word and when to use each word**
Week 10	**Writing Lesson** **Each student chooses a geological subject and the write a short paragraph.**
Week 11	**Preposition** **This lecture include two types of preposition word with different examples**
Week 12	\
Week 13	\
Week 14	\
Week 15	**Preparatory Week**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	**Text**	**Available in the Library?**
Required Texts	**Research methodology, method and techniques,C.R.Kothari**	**Yes**
Recommended Texts		
Websites		

Module Information معلومات المادة الدراسية			
Module Title	**Computer Skills Basic I**	**Module Delivery**	
Module Type	**Basic**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**UOB103**		
ECTS Credits	**3.00**		
SWL (hr/sem)	**75**		
Module Level	**UGI**	**Semester of Delivery**	**One**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr. Omar Fitian**	**e-mail**	**omar.f@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**Abdallah A. Ibrahim**	**e-mail**	**Abdullah.i@sc.uobaghdad.edu.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**UOB-235**	**Semester**	**Three**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**This module provides an introduction to essential computer skills. In this module, students will learn,** • **computer literacy, including hardware and software fundamentals in theory as well as practical.** • **various office applications (Microsoft Word, Excel, and PowerPoint), where students will use these software applications to create a current resume, and slide presentation.** **basic computer knowledge and skills required to obtain an understanding of computer hardware, software, Internet, and web search.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**By the end of this module, students should be able to:** ١. **Understand computer hardware, software components, and peripheral devices, enabling them to use computers confidently.** ٢. **Manage and organize files and folders on a computer effectively, including creating, renaming, moving, and deleting files and folders.** ٣. **Efficiently employ Microsoft Office to execute fundamental tasks with**

	ease. **٤. Navigate the internet and communicate via email, while understanding internet safety.** **Upon finishing the course, students will be aware of the ethical and security considerations when using computers, promoting safe and responsible digital behavior.**
Indicative Contents **المحتويات الارشادية**	**Part A: Understanding Computer Components** Starting with an introduction to computers, the first part introduces learners to identify computer peripherals, internal components, and the operation of the Windows operating system. **Part B: Exploring Microsoft Office** In this part, the student will learn how to work with Microsoft Office package to create Word documents and Excel spreadsheets and get ideas to create a PowerPoint presentation. **Part C: Navigating the Internet** In this part, the student will learn the knowledge of harnessing the power of the internet to search for information through web browsers. **Part D: Computer Ethics** In this part, the student will learn to address issues related to the misuse of computers and how they can be prevented
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	**١. Providing lectures to explain essential principles related to computer skills.** **٢. Projects and activities shared among students.** **٣. Examinations to gauge students' understanding and identify areas where additional support may be needed.** **Providing guidance on textbooks, online resources, and supplementary references that can aid students in their studies more efficiently.**

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**50**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**3**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**25**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**1**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**75**		

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 8**
	Projects / Lab.	**1**	**10% (10)**	**Continuous**	**All**

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	**Material Covered**
Week 1	**Computer Fundamentals. Characteristics of Computers, Block Diagram of Computer: Input Unit, Storage Unit, Memory size, Output Unit, Arithmetic Logical Unit, Control Unit, Central Processing Unit, Data Representation: Binary Number System.**
Week 2	**Memory: Types, Units of memory, RAM, ROM, Secondary storage devices – HDD, Flash Drives, Optical Disks: DVD I/O Devices – Keyboard, Mouse, LCDs, Scanner, Plotter, Printer and Latest I/O devices in market**
Week 3	**MS Windows: Desktop, My Computer, Files and folders using windows explorer; Control Panel, Searching Files and folders**
Week 4	**MS Word: Introduction, Environment, Help, Creating and Editing Word Document. Saving Document, Working with Text: Selecting, Formatting, Aligning and Indenting**
Week 5	**MS Word: Finding Replacing Text, Bullets and Numbering, Header and Footer, Working with Tables, Properties Using spell checker, Grammar, AutoCorrect Feature, Synonyms and Thesaurus**
Week 6	**MS Word: Graphics: Inserting Pictures, Clipart, Drawing Objects, Using Word Art. Setting page size and margins; Printing documents. Mail Merge Practical**
Week 7	**MS-Excel: Environment, Creating, Opening, and Saving Workbook. Range of Cells. Formatting Cells, Functions: Mathematical, Logical, Date, Time, Auto Sum**
Week 8	**Mid Exam**
Week 9	**MS-Excel: Formulas. Graphs: Charts. Types and Chart Tool Bar. Printing: Page Layout, Header and Footer Tab**
Week 10	**MS PowerPoint: Environment, Creating and Editing presentation, Auto content wizard, using built-in templates**
Week 11	**MS PowerPoint: Types of Views: Normal, Outline, Slide, Slide Sorter, Slide Show, Creating customized templates; formatting presentations Graphics: AutoShapes, adding multimedia contents, printing slides**
Week 12	**Internet: Basic Internet terms: Web Page, Website, Home page, Browser, URL, Hypertext, ISP**
Week 13	**Web Server Applications: WWW, e-mail, Instant Messaging, Internet Telephony, Videoconferencing, Web Browser and its environment**
Week 14	**Computer Ethics and Societal Impact: Computer ethics encompass a collection of moral principles that regulate the utilization of computers. It reflects society's perspectives regarding the use of computer hardware and software. These ethical considerations address a range of critical issues, including privacy concerns, intellectual property rights, and the broader societal impact of computer technology.**
Week 15	**Preparatory week**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	**Material Covered**

Week 1	**Introduction to windows 10** **Desktop Components** **The start menu (its functions and properties)** **Task bar (its functions and properties)**
Week 2	**Windows 10 File Explorer:** **Files and Folders: All operations on files and folders**
Week 3	**Windows 10 Settings:** **System Settings, Devices Settings, Network & Internet Settings, Personalization Settings, Apps Settings, Accounts Settings, Time & Language Settings, Privacy Settings, Update & Security Settings**
Week 4	**Microsoft Word 2016** **Introduction to Word 2016 Interface** **File Tab** **Home Tab**
Week 5	**Microsoft Word 2016** **Insert Tab** **Table Design & Layout Tabs**
Week 6	**Microsoft Word 2016** **Design Tab** **Layout Tab** **References Tab**
Week 7	**Microsoft Word 2016** **Review Tab** **View Tab** **Quiz (4, 5, 6, 7) Word only**
Week 8	**Mid Exam**
Week 9	**Microsoft Excel 2016** **Introduction to Excel 2016 Interface** **File Tab** **Home Tab**
Week 10	**Microsoft Excel 2016** **Insert Tab** **Chart Design & Layout Tabs**
Week 11	**Microsoft Excel 2016** **Formula Tab** **Data Tab**
Week 12	**Microsoft Excel 2016** **Review Tab** **View Tab**
Week 13	**Microsoft PowerPoint 2016** **Introduction to PowerPoint 2016 Interface** **Home Tab** **Insert Tab** **Design Tab**
Week 14	**Microsoft PowerPoint 2016** **Transition Tab** **Animation Tab** **Slide Show**
Week 15	**Preparatory Week**

Learning and Teaching Resources مصادر التعلم والتدريس		
References	**Text**	**Available in the Library?**
Required Texts	\	
Recommended Texts	• Wallace Wang, Absolute Beginners Guide to Computing, Apress, 2016. • Michael Miller, Absolute Beginner's Guide to Computer Basics, Que, 2022. • Chris Ewin, Carrie Ewin, Cheryl Ewin, Computers for Seniors: Email, Internet, Photos, and More in 14 Easy Lessons, William Pollock, 2017.	No
Websites	**Youtube Channel:** **https://youtu.be/egyyIFlbrvU?si=EVZL-IAJDX3Yw-UP**	

Module Information معلومات المادة الدراسية			
Module Title	**Democracy & Human rights**	**Module Delivery**	
Module Type	**Supportive**	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**UOB104**		
ECTS Credits	**2.00**		
SWL (hr/sem)	**50**		
Module Level	**UGI**	**Semester of Delivery**	**One**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Ansam Faik Abdul - Rezzak Al-Obidi**	**e-mail**	**ansam.faik@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**M.Sc.**
Module Tutor	**None**	**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	١. **This course deals with the basic concept of human rights& democracy** ٢. **Clarifying and training students on the most important principles of human rights and democracy.** ٣. **Organizing discussions and presentations on the most vital and basic topics affecting community building, related to human rights and democracy..** ٤. **Adopting teamwork with students to develop their cognitive abilities and create a spirit of cooperation, initiative, creativity and exchange of views in an effort to build the foundations of peaceful community coexistence.** ٥. **Providing society with conscious youth aware of the importance of its role in building society, its unity and cohesion through spreading the culture of human rights and establishing the rules of correct democracy.** ٦. **Human rights guarantee the protection and respect of an individual's interests, even when he or she is not a majority. In a democratic climate, sustainable democratic power cannot be conceived without respecting, protecting and fulfilling human rights. Through their combined influence, they allow the individual a life based on the freedom of self-determination and collective. That is why the protection and realization**

	of human rights truly form the basis of the democratic project.
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**Cognitive goals.** **١. Educate students and inform them about the importance of human rights and democracy.** **٢. Recognize and understand the methods of teamwork for the exchange of ideas and creative discussions** **٣. Developing students' performance through guidance in preparing mini-research on modern vocabulary on vital topics related to human rights and democracy.** **٤. Providing students with creative development abilities in modern proposals and creative developmental ideas by discussing awareness videos presented on electronic classes.** **٥. Developing the skills of sharing opinions and ideas and respecting others opinion.** **٦. Objective Skills :** **٧. Basic knowledge in the principles of human rights and democracy.** **٨. Building the innovative personality of knowledge through online research and the transfer and exchange of information.** **٩. Discuss the various properties about everything related to human rights and their importance in our daily lives.** **١٠. Identify everything related to democracy and the foundations of the performance of the electoral process and its importance in building the nation.** **١١. Identify the capacitor and inductor phasor relationship with respect to voltage and current.**
Indicative Contents **المحتويات الارشادية**	**١. Developing the student's analytical and critical skills regarding the reality and future of human rights and democracy.** **٢. Training the student on the importance of active participation in aspects of public life, such as promoting respect for the principles of public human rights and active participation in political and cultural life.** **٣. Enable students to understand the importance of education and its role in spreading the culture of human rights and democracy in building a civilized society based on good governance, the most important component of which is belief in human rights, education and active participation in governance through free and fair elections.**
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	**The main strategy that will be adopted in delivering this module is to encourage students' participation in the discussions, dialogues and group work lectures & exercises, while at the same time refining and expanding their critical thinking skills. There are many teaching and learning methods used, and the most important of these methods are: Theoretical lecture, discussion and dialogue, panel discussions on** **certain topics, theoretical student research** **Library and electronic activities (which helps students to reach the following results:** **١. The scientific ability to distinguish between correct information and wrong information.** **٢. Ease of scientific drafting and ease of correction.**

	٣. Ability to memorize and guess. ٤. The ability to link concepts and principles with reality. ٥. Ability to invoke, link, interpret.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Familiarity with the concept of human rights and the definitions approaching it, discussing, dismantling and criticizing them in a scientific way in order to reach the most accurate and objective. - Definition of right , of human, of the concept of human rights. Human rights qualities, Types of human rights Human Rights Categories
Week 2	The historical development of human rights: Orcagina Reforms 1- Urnamo Law.2- The law of Ishtar Bit. 3- The law of the Kingdom of Eshnuna.4- Code of Hammurabi.
Week 3	Human rights in other ancient civilizations: 1- Indian and Chinese civilization 2- Pharaonic civilization of Egypt 3- Greek civilization 4- Roman civilization
Week 4	Human rights in heavenly laws, Human Rights in Judaism, Human rights in Christianity, Human Rights in Islam.
Week 5	Human rights in Renaissance - modern and contemporary societies Introducing the student to the most important UN document in the field of human rights, which was approved and approved by the Assembly on January 10, 1948 Universal Declaration of Human Rights 1948.
Week 6	Non-governmental organizations defending human rights: Amnesty International, b. International Committee of the Red Cross. Arab Organization for Human Rights.
Week 7	Definition of the phenomenon of administrative corruption, Types of administrative corruption, Causes of administrative corruption. The repercussions of the phenomenon of administrative corruption on human rights and society. Successful treatments to combat corruption and protect society from it.
Week 8	Introduction - Historical development of the concept of democracy, definition of

	democracy, freedom. The difference between freedom and democracy, The relationship between the rights and public freedoms of individuals and democracy, Islamic views in a democratic system of government , Shura and Democratic System
Week 9	**Specifications and duties of the Islamic ruler reading, The era of Imam Ali "peace be upon him" to his governor over Egypt: Specifications of the Islamic ruler: First: The moral and doctrinal components of the ruler Second: The general culture of the Islamic ruler, Third: Acumen and good choice: -Fourth: Direct relationship with people: Fourth: Direct relationship with people.** **Duties of the Islamic ruler:** **First: Social Reform: Second: Achieving security and defense Third: The architecture of the country "economic development"**
Week 10	**Forms of democracy: (1): Direct democracy ,(2): Semi-direct democracy ,** **(3): Parliamentary democracy (parliamentary representation)4): Liberal Democracy** **(5): consociation Democracy, (6): Delegated Democracy.**
Week 11	**Conditions for the success of the elements and pillars of the democratic system General conditions for the success of the democratic system: 1. Respect for human rights, 2. Political pluralism 3. Peaceful transfer of power 4. Political equality 5.** **Respect the principle of the majority 6. Existence of the rule of law.**
Week 12	**Components or elements of democracy:** **1 – Citizenship 2- Political participation 3. Elections 4. MPs and Responsibility** **5. Opposition 6- Separation of government and parliament 7- Constitutional legitimacy**
Week 13	**The concept of elections and their legal adaptation: First: The concept of election Second: Legal adaptation of the Election, Third: Conditions of Election, Fourth: Concepts of Elections, Fifth: Types of Electoral Systems. Assessing the Democratic System, Pros and advantages of the democratic system, Disadvantages and disadvantages of the democratic system, Implementing the democratic system in** **Iraq.**
Week 14	**Lobbyists: First: the concept and definition. Second: Types of pressure groups. Third: The methods of pressure groups that they use to achieve their goals.** **Fourth: Lobbying and Democracy.**
Week 15	**Preparatory Week**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	**Text**	**Available in the Library?**
Required Texts	**Martyrdom verses from the Holy Quran** **Mohammed Al-Tarawneh et al., International Humanitarian Law, ICRC, Amman, 2005** **Diamond Larry, Democracy: Its Development and Ways to Enhance It, translated by Fawzia Naji, Dar Al-Mamoun for Translation, Iraq, 2005.**	**Yes**
Recommended Texts	**journal.un.org** **Hadi, Riad Azabz. (2005). Human rights (evolving contents and protection) (Baghdad).**	**Yes**
Websites	**Universal Declaration of Human Rights | United Nations** **https://sc.uobaghdad.edu.iq/?page_id=8415** **https://www.youtube.com/@ansamalobidimanagerofhuman2891**	

Module Information معلومات المادة الدراسية			
Module Title	**Historical Geology**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO1204**		
ECTS Credits	**9.00**		
SWL (hr/sem)	**225**		
Module Level	**UGI**	**Semester of Delivery**	**Two**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr. Mustafa Ali Hassan**	**e-mail**	**Dr.musstafali@gmail.com**
Module Leader's Acad. Title	**Assistant Professor**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**Dr. Mohammad Hassan**	**e-mail**	**Mohammad Hassan @sc.uobaghdad.edu.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**GEO-1101**	**Semester**	**One**
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**١- Historical geology is the use of the principles of geology to reconstruct and understand the history of the Earth. It focuses on the geological processes that change the Earth's surface and core, and uses stratigraphy, structural geology, and paleobiology to identify the sequence of these events.2- Providing students with an appropriate amount of information and expertise in the field of geoscience in a functional manner that contributes to the acquisition of a scientific culture and contributes to academic preparation and helps them to identify the natural resources in their country** **٢-It includes the study of the changes that occurred on the earth's surface in terms of water distribution and land areas since its inception Earth from about 6.4 billion years ago until now.** **٣-The study of the Earth's relations with the solar system and the universe, as this section means by studying the effects and remains of ancient life on Earth since the emergence of life about two billion years ago to the**

	present time
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	١- Gaining the ability and skill in field interpretation and deduction. ٢- Acquiring the skill of distinguishing between different geological features. ٣- Dealing with the basic laws of various earth sciences. ٤- Using the principle of the past is key to the present ٥- Field and laboratory description ٦- investigation and exploration ٧- Scientific reports
Indicative Contents **المحتويات الارشادية**	١- It includes the study of the changes that occurred on the earth's surface in terms of water distribution and land areas since its inception Earth from about 6.4 billion years ago until now. ٢- Studying the Earth's relations with the solar system and the universe, as this section means by studying the effects and remnants of ancient life on Earth since the emergence of life about two billion years ago to the present time ٣- Providing students with an appropriate amount of information and expertise in the field of earth science in a functional manner that contributes to their acquisition of a scientific culture and contributes to academic preparation and helps them to identify the natural resources in their country.
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	١- Fieldwork and Hands-on Experience. Hands-on experience allows students to develop observational skills, make connections between theoretical concepts and real-world examples, and enhance their understanding of stratigraphic principles. ٢- Visual Aids: Utilize visual aids, such as diagrams, charts, maps, and photographs, to help students visualize and comprehend stratigraphic concepts. Use geological maps to demonstrate the distribution and relationships between different rock units and incorporate stratigraphic columns to illustrate the vertical succession of strata. ٣- Virtual Resources: Take advantage of virtual resources, such as interactive online modules, virtual field trips, and digital simulations. These resources can provide students with immersive experiences, allowing them to explore stratigraphic principles and study geological features virtually. ٤- Case Studies and Real-life Examples ٥- Laboratory Work: Conduct laboratory exercises that involve the description and interpretation of rock samples, including the identification of lithology, sedimentary structures, and fossil content. Encourage students to create stratigraphic logs or cross-sections based on the laboratory data, promoting critical thinking. ٦- Collaborative Learning: Foster collaborative learning environments where students can work in groups or pairs to solve problems, analyze data, or interpret stratigraphic information. This approach encourages active engagement, promotes discussions, and allows students to learn from one another's perspectives and insights. ٧- Multimedia Resources: Incorporate multimedia resources, such as videos, animations, and online lectures, to supplement traditional

	teaching methods. Multimedia resources can help reinforce key concepts, illustrate geological processes, and provide additional visual and auditory learning opportunities.

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**145**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**9**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**225**		

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

Delivery Plan (Weekly Syllabus) **المنهاج الاسبوعي النظري**	
Week	**Material Covered**
Week 1	**Introduction- Historical geology**
Week 2	**Relative Time and Geologic Time scale**
Week 3	**Geologic Laws**
Week 4	**Faunal succession and index fossils1**
Week 5	**Faunal succession and index fossils)2**
Week 6	**Absolute Time Parent Atom, Potassium-Argon Dating,**
Week 7	**Absolute Time Radiometric Dating, Uranium Dating**
Week 8	**Midterm Exam**
Week 9	**Interior of the earth**
Week 10	**Earth's magnetic field**
Week 11	**Plate tectonics**
Week 12	**Structural geology1**
Week 13	**Structural geology2**

Week 14	**Maps**
Week 15	**The history of the earth**

Delivery Plan (Weekly Lab. Syllabus) **المنهاج الاسبوعي للمختبر**	
Week	**Material Covered**
Week 1	**Lab 1: Geologic Laws**
Week 2	**Lab 2: Geologic Laws**
Week 3	**Lab 3: difference between fossil and index fossil**
Week 4	**Lab 4: superposition and faunal fossil**
Week 5	**Lab 5: magnetic field**
Week 6	**Lab 6: Folding**
Week 7	**Lab 7: Faulting and Fracturing**
Week 8	**Lab 8: Topographic map, Structural map**
Week 9	**Lab 9: geologic map**
Week 10	**Lab 10: index fossil**
Week 11	**Lab 11: Map of isochatel and isobach**
Week 12	**Lab 12: Geological section**
Week 13	**Lab 13: compass and field tools**
Week 14	**Lab 14: hydraulic properties**
Week 15	**Lab 15: Comprehensive laboratory review**

Learning and Teaching Resources **مصادر التعلم والتدريس**		
References	**Text**	**Available in the Library?**
Required Texts	**١. Physical Geology First ٢. ٩١٠٢Saskatchewan Edition, ٤١٠٢Historical geology**	**Yes**
Recommended Texts	**اساسيات الجيولوجيا التاريخية هو كتاب علمي من تأليف أ.د.محمد أحمد حسن هيكل - د. عبد الجليل عبد الحميد هويدي ٧٠٠٢**	**No**
Websites		

Module Information معلومات المادة الدراسية			
Module Title	**Mineralogy**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO1205**		
ECTS Credits	**9.00**		
SWL (hr/sem)	**225**		
Module Level	**UGI**	**Semester of Delivery**	**Two**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Hasan Kattoof Jasim**	**e-mail**	**Hasan.jasim@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**GEO-1102**	**Semester**	**One**
Co-requisites module	**GEO-2309**	**Semester**	**Three**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**١- Mineralogy aims to introduce the student to this very important science, which has many applications, as rocks are composed in nature of minerals, and therefore the earth's crust will also be composed of minerals, which will affect many of the events that occur in the earth's crust, as well as the economic importance of minerals, which are included in Lots of industries** **٢- Mineralogy also aims to recognize that minerals are the main source of chemical elements, which are considered the basic element of many sciences, especially chemistry, physics and engineering branches.**
٣- Module Learning Outcomes **٤- مخرجات التعلم للمادة الدراسية**	**١- Learn about the physical properties of minerals** **٢- Training on the physical and chemical properties, which will help in the process of distinguishing between minerals according to their properties** **٣- Training in the diagnosis of minerals in the laboratory, and this will be of importance in geological work, especially in mines and field work** **٤- Training on the types of minerals and understanding the differences between them will have great economic importance, especially in the field of industrial minerals**
Indicative Contents	**١- Mineralogy aims to know how and how Minerals are formed in nature** **٢- Mineralogy is the main branch of geology , , and this science is important,**

المحتويات الارشادية	especially in mineral diagnostic processes that have many applications, especially in the classification of rocks, as well as the diagnosis of minerals of economic importance ٣- Mineralogy has many important applications, especially in the identification of minerals for many purpose especially in industrial uses

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	١- Identify the minerals are used in the laboratory and their relationship with real crystals of minerals in nature ٢- Understand the ways in which minerals crystallize, which will vary according to the processes by which the types of igneous, sedimentary, and metamorphic rocks are formed. ٣- The study of minerals is very important, as many industrial and engineering applications are based on it, such as construction supplies and various industries ٤- Minerals are considered the backbone of the economy for many countries, as they are considered a natural wealth, just like crude oil, and minerals are found in all countries of the world because they make up the earth's crust.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	80	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	145	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	225		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction to Mineralogy
Week 2	Methods of Minerals Crystallization in the nature
Week 3	Steps of Discovering and naming a new Mineral
Week 4	Physical properties of Minerals - Optical and Cohesive Properties

Week 5	**Classification of Minerals**
Week 6	**Form and Habits of Minerals**
Week 7	**Important of Minerals**
Week 8	**Midterm Exam**
Week 9	**Hazards of Minerals**
Week 10	**Classes and Groups of Minerals**
Week 11	**Non- Silicates Minerals**
Week 12	**Bowen Reaction Series**
Week 13	**Silicates Minerals**
Week 14	**Structure of Silicate minerals – Types of Silica Tetrahedron Connection**
Week 15	**Minerals in Iraq**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	**Lab 1: Introduction to Crystallography**
Week 2	**Lab 2: Methods for Identification of Minerals**
Week 3	**Lab 3: Physical properties of minerals (Optical Properties)**
Week 4	**Lab 4: Color of Minerals**
Week 5	**Lab 5: Luster of Minerals**
Week 6	**Lab 6: Streak of Minerals**
Week 7	**Lab 7: Transparency of Minerals**
Week 8	**Lab 8: Physical properties of Minerals (Cohesive Properties)**
Week 9	**Lab 9: Hardness of Minerals**
Week 10	**Lab 10: Fracture of Minerals**
Week 11	**Lab 11: Cleavage of minerals**
Week 12	**Lab 12: Other properties of identification (Electrical , Magnetic, Thermal, Test Properties)**
Week 13	**Lab 13: Form and Habit of Minerals**
Week 14	**Lab 14: Classes of Minerals**
Week 15	**Lab 15: Final practical Examination of Minerals**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?

Required Texts	**Berry, L, G., and Meson, B., 1959, Elements of Mineralogy, W. H. Freeman and Co., USA, 550P.**	**Yes**
Recommended Texts	**Nesse, W. D., 2000, Introduction to Mineralogy, Oxford University Press, New York, 442P.**	**No**
Websites	**www.Mindat.com**	

الفيزياء العامة – المرحلة الاولى / الفصل الثاني

Module Information **معلومات المادة الدراسية**			
Module Title	**General Physics**	**Module Delivery**	
Module Type	**Basic**	**☒ Theory** **☐ Lecture** **☒ Lab** **☐ Tutorial** **☐ Practical** **☐ Seminar**	
Module Code	**GEO1206**		
ECTS Credits	**6.00**		
SWL (hr/sem)	**150**		
Module Level	**UGI**	**Semester of Delivery**	**Two**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr. Ali Hassan Khidhir**	**e-mail**	**ali.khidhir@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Asst. Professor**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules **العلاقة مع المواد الدراسية الاخرى**			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents **اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية**	
Module Aims **اهداف المادة الدراسية**	**١. Teaching students the basic principles of physics.** **٢. Preparing specialists in the field of general physics and its practical applications, which bears the responsibility of studying the country's need for development and progress and capable of meeting the needs of the job market in state institutions and industry sectors.** **٣. Preparing an educated generation armed with science and adopts it as a sound basis to bring about radical changes and assign scientific knowledge**

	and scientific methods in thinking, analysis and adaptation with the development of technologies, to keep up with the expansion of human needs. ٤. Effective contribution for deepening and documenting the connection of the university with the society through the implementation of advisory counseling, training and development of teaching and administrative staff. ٥. The service of preparing graduates specialized in physics who contribute to development in the country. ٦. Meeting the needs of various sectors with highly qualified personals in the field of physics. ٧. Encouraging the distinguished in this field to work as teaching assistants in the department to be part of the academic teaching staff in the future.
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	١- enable students to obtain knowledge and understanding of the concept of physics. ٢- Enable students to obtain knowledge and understanding of the scientific laws of physics. ٣- Enable students to keep pace with scientific development in all scientific fields of physics.
Indicative Contents **المحتويات الارشادية**	- This course contains a lot of vocabulary, which is a branch of physics concerned with the nature and properties of matter and energy. - It includes an introduction to understanding natural phenomena, the forces and movement affecting their course, and the formulation of knowledge into laws that do not only explain the aforementioned processes, but also predict the course of natural processes with models that gradually approach reality. - The topic of general physics includes an introduction to physics, vector analysis, Newton's laws in linear motion, circular motion, and rotational motion. Also, gravitational force, work, energy, torque, angular momentum, laws of motion with constant or uniform acceleration of linear and rotational motion, dynamic fluids, static fluids, particle stability, electric charge, electric field, and electric potential in electrical circuits and ray optics.
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	- The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**70**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**4**
Total SWL (h/sem) **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 8
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2hr	10% (10)	8	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	A brief summary of the vectors, scalar and vector quantities, addition of vectors, unit vector, component of vectors, dot product and cross product. With examples for all these topics.
Week 2	Motion on a straight line: Displacement, Average velocity, Instantaneous velocity, Average acceleration, and Instantaneous acceleration. With examples for all these topics.
Week 3	Application of Motion with a constant acceleration: Freely falling bodies, and Projectile of motion. With examples for all these topics.
Week 4	Equilibrium of a particle: Understanding of forces, Newton's first law, Newton's second law, Newton's third law, and mass and weight. With examples for all these topics.
Week 5	Friction force, inclined plane, Torque of force, Center of gravity of the body, Center of mass, Motion of a system of particle, and Newton's law of universal gravitation. With examples for all these topics.
Week 6	Circular and Rotational motion: Motion in a circle, uniform circular motion, central or radial force, non-uniform circular motion, Central or radial acceleration, Central force, tangential acceleration, and tension in circular motion. With examples for all these topics.
Week 7	Rotational motion, angular displacement, angular velocity, and angular acceleration. With examples for all these topics.
Week 8	Midterm exam
Week 9	Rotational motion with a constant angular acceleration, relation between angular and linear velocity and acceleration, torque, angular acceleration, and moment of inertia. With examples for all these topics.
Week 10	Elasticity: The street and strain, elastic modulus, Hook's law, tensile and compressive stress and strain, Young's modulus, bulk stress and strain, bulk modulus, compressibility, shear stress and strain, Poisson's ratio, and force constant. With examples for all these topics.
Week 11	Static fluids: Density, specific gravity, pressure in a fluid, atmospheric pressure, pressure-depth-Pascal's law, buoyancy, Archimedes principle, and define the surface tension. With examples for all these topics.
Week 12	Dynamic fluids: Ideal fluid, the continuity equation, Bernoulli's equation, Venturi meter, and define the viscosity. With examples for all these topics.
Week 13	Electric charge and electric field: Conductor, insulator, and induced charges. Coulomb's law, electric field, intensity of electric field, electric potential energy, electric potential energy in a uniform field, electric potential energy of two point charges, potential difference, potential gradient, equipotential surfaces, and electric potential. With examples for all these topics.
Week 14	Geometric optics: Nature and propagation of light, wave front, properties of light, types of

	reflection, index of refraction, laws of reflection and refraction, total internal reflection, real and apparent depth, refraction by prism.
Week 15	**mirrors & lenses: Spherical mirrors, image formations, spherical aberration, types of simple lenses, converging lens, diverging lens, properties of lenses, image formation by thin lenses,**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	**Moment of inertia for flywheel**
Week 2	**Simple pendulum**
Week 3	**Surface tension**
Week 4	**Speed of sound**
Week 5	**Glass refractive index**
Week 6	**diffraction grating**
Week 7	**Equilibrium forces**
Week 8	**Midterm exam.**
Week 9	**Ohm's law**
Week 10	**Viscosity**
Week 11	**Wheatstone bridge**
Week 12	**inclined plane**
Week 13	**Archimedes principle**
Week 14	**focal length of the lens**
Week 15	**standing waves**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	**Fundamental of Physics (Halliady, Resnick, and Walker).**	**Yes**
Recommended Texts		
Websites		

Module Information معلومات المادة الدراسية			
Module Title	**Mathematic**	**Module Delivery**	
Module Type	**Basic**	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO1207**		
ECTS Credits	**4.00**		
SWL (hr/sem)	**100**		
Module Level	**UGI**	**Semester of Delivery**	**Two**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Rana A. Mohammed**	**e-mail**	**Rana.a@scuobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**PH.D.**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**١. Training the student to benefit from the properties of real numbers with related concepts.** **٢. Employed the mathematical concepts in the academic aspects that the student needs.** **٣. Enhancing students' mental fitness and maintaining mental acuity.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**١. Basic concepts: Students will be able to recognize the relation among real numbers and other it's subsets** **٢. Mental abilities: Students will understand how to reach the solution through simple and brief methods as well as he will able to solve various problems in the fields of general mathematics.** **٣. The student will be able how to employed mathematical concepts that he learns in his specialization field.**
Indicative Contents **المحتويات الارشادية**	**Indicative contents of learning General mathematics:** **١. Real numbers and their properties** • **Subsets of real numbers** • **Intervals**

	• **Inequalities** • **Absolute value** • **Coordinates in the plane** ٢. **Functions** • **Domain an Range for the functions** • **Graph of functions** • **Types of functions** • **Operations on functions** ٤. **Limits** ٥. **Continuity** ٦. **Trigonometric functions** ٧. **Derivatives** • **Derivative rules** • **The chin rule**
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	١. **Hands-on Practice: Emphasize practical exercises and hands-on activities where learners actively engage with the manual solution. Provide step-by-step instructions and guided practice opportunities to ensure learners gain experience.** ٢. **Demonstration: Start by demonstrating mathematical concepts with examples to show learners how to solve related tasks,** ٣. **Interactive Tutorials: Utilize interactive tutorials and simulations that allow learners to interact in a simulated environment. These resources provide guided instructions and immediate feedback, enabling learners to practice and reinforce their skills.** ٤. **Scenario-based Learning: Present real-life scenarios where learners can apply their knowledge to solve problems or complete specific tasks. Encourage critical thinking and problem-solving skills by challenging learners to find solutions using the various mathematical concepts they have learned.** ٥. **Group Activities and Discussions: Foster collaboration and peer learning by incorporating group activities and discussions. Encourage learners to share their experiences, ask questions, and help each other troubleshoot issues or explore advanced features.** ٦. **Multimedia Resources: Supplement traditional instruction with multimedia resources such as video tutorials, interactive e-learning modules, and online resources. These resources can provide additional explanations, demonstrations, and visual aids to enhance understanding and retention of the content.** ٧. **Practice Projects and Assignments: Assign practical projects or assignments that require learners to apply their skills to create documents, presentations, or other tasks. Provide clear objectives and guidelines, and encourage creativity to promote active learning.** ٨. **Assessments and Feedback: Use formative and summative assessments to gauge learners' understanding and progress. Provide constructive**

	feedback on their work to highlight areas for improvement and reinforce correct practices. ٩. Adaptability and Differentiation: Recognize the diverse needs and learning styles of learners and adapt the instruction accordingly. Provide differentiated instruction, additional resources, or alternative learning paths to cater to individual learners' abilities and preferences.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**35**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**2**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**65**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**4**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**100**		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Real numbers and their properties Subsets of real numbers Properties of real numbers
Week 2	Intervals Graph of intervals on real line
Week 3	Inequalities
Week 4	Absolute value
Week 5	Coordinates in the plane Slope Equation of the line
Week 6	Functions Domain an Range for the functions
Week 7	Graph of functions Types of functions Operations on functions
Week 8	Midterm Exam

Week 9	**Limits**
Week 10	**Continuity**
Week 11	**Trigonometric functions** **Graph of geometric functions**
Week 12	**Derivatives** **definition with examples**
Week 13	**Derivative rules**
Week 14	**The chin rule**
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	**Real numbers and their properties** • **Subsets of real numbers** • **Properties of real numbers**
Week 2	**Intervals** **Graph of intervals on real line**
Week 3	**Inequalities**
Week 4	**Absolute value**
Week 5	**Coordinates in the plane** **Slope** **Equation of the line**
Week 6	**Functions** **Domain an Range for the functions**
Week 7	**Graph of functions** **Types of functions** **Operations on functions**
Week 8	**Midterm Exam**
Week 9	**Limits**
Week 10	**Continuity**
Week 11	**Trigonometric functions** **Graph of geometric functions**
Week 12	**Derivatives** **definition with examples**
Week 13	**Derivative rules**
Week 14	**The chin rule**
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	1.Thomas calculus any edition	Yes
Recommended Texts		
Websites	https://youtube.com/playlist?list=PL7nhsj3rJk8OjBJf0w6ge2C0rvp_eI3QT&si=KCNeCkPt8MnCFEP1	

Module Information معلومات المادة الدراسية			
Module Title	**Arabic Language I**	**Module Delivery**	
Module Type	**Supportive**	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**UOB101**		
ECTS Credits	**2.00**		
SWL (hr/sem)	**50**		
Module Level	**UGI**	**Semester of Delivery**	**Two**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr. Leqaa faleh owdaa**	**e-mail**	**leqaa.falih@ircoedu.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	١. **تهدف إلى تنمية روح الإعتزاز باللغة العربيَّة للمحافظة على الهوية العربيَّة.** ٢. **تهدف إلى تأهيل الطلبة بالمعارف والمخرجات الخاصة علم النحو، والصرف، والإملاء؛ لتمكنه من الكتابة الصحيحة والتعبير السليم وتقويم لسانه.** ٣. **تهدف إلى تنمية ذوق الطالب الأدبي وإثراء تحصيله وإغناء زاده من الفكر العربي والإسلامي.** ٤. **تهدف إلى تطوير مهارات الطلاب اللغويَّة التي تؤهلهم للإبداع المتميز.** ٥. **تهدف إلى تنمية مهارات التحدث بـ (اللغة العربيَّة).** ٦. **تهدف إلى الارتقاء بمستوى الطلبة من الجانب المهني والبحثي.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	١-**التعرف على أهم خصائص اللغة العربيَّة وأهميتها في مجال العلم كونها أداة نقل العلم والمعرفة.** ٢-**التعرف على أقسام الكلمة وعلامات كل منها كونها المحور الرئيسي الذي يتألف منها الكلام.** ٣-**التمييز بين المبني والمعرب وعلامات كل منها وتوضيحها بالأمثلة.** ٤-**التعرف على المبتدأ والخبر من حيث تعريفهما وحكمهما وبيان ذلك بالأمثلة التوضيحية.** ٥-**التمييز بين الفاعِل ونائب الفاعِل من حيث تعريفهما وأحكامهما وبيان ذلك بالأمثلة التوضيحية.** ٦-**التعرف على الأعداد وبيان العلاقة بين العدد والمعدود من حيث المطابقة والمخالفة أو الاستعمال بلفظ واحد، ومعرفة التقديم والتأخير بين العدد والمعدود، فضلاً عن معرفة أحكام العدد والمعدود في كل منها.** ٧-**التعرف على المشتقات والذي تعد من أبرز خصائص اللغة العربية التي تميزت بها عن اللغات الأخرى، وبيان حيويتها وقدرتها على استيعاب العلوم والتعبير عنها، وذلك بدراسة أنواع المشتقات واشتقاقاتها واستعمالاتها كـ (اسم الفَاعِل، اسم المَفْعُول، صيغة المبالغة ...).**

٨-التعرف على جمع التكسير ، وأنواعها (جمع القلة وجمع الكثرة) وأوزانها . ٩-التعرف على قواعد كتابة التاء المربوطة والمفتوحة في آخر الألفاظ، وذلك بذكر مواضع كل منها، والتمييز بين الهاء والتاء المربوطة، مع ضبط كتابة التاء المربوطة وفق القاعدة. ١٠- التمييز بين الضاد والظاء كون مشكلة الفرق بين الضاد والظاء تكمن في النطق والكتابة وذلك بدراسة محاور الفرق بين الضاد والظاء من حيث الاسم والرسم والنطق والمعنى وغير ذلك. ١١- التعرف على الهمزة كونها أحد حروف اللغة العربيَّة والتمييز بين همزة الوصل والقطع، وذلك بذكر مواضع كل منها، فضلاً عن قواعد كتابة همزة القطع وصورها المختلفة. ١٢- تمكن الطالب من استعمال علامات الترقيم في كتابة البحوث والتقارير أو أي نص آخر واستعمالها استعمالاً صحيحاً، لما لها من أثر في توضيح النص بين المتكلم والمتلقي. ١٣- التعرف على أهم الأغلاط اللغويَّة الشائعة: النَّحويَّة والصرفيَّة، والإملائيَّة. ١٤- التعرف على الشاعر العراقي محمد مهدي الجواهري كونه رمز من رموز الشعر العمودي في العراق، والشاعر بدر شاكر السياب كونه أحد رواد الشعر الحر في العراق.	
Indicative Contents **المحتويات الارشادية**	اللغة العربيَّة: خصائصها، مميزاتها، أهميتها. - أقسام الكلمة: الاسم والفعل والحرف. - المبني والمعرب: علامات البناء وعلامات الإعراب. - المبتدأ، الخبر. - الفاعِل، نائب الفاعِل: أحكام الفاعِل ، أحكام نائب الفاعِل . - العدد: أحكام العدد. - المشتقات: اسم الفَاعِل، اسم المَفعُول، صيغة المبالغة... - جمع التكسير: جمع القلة، جمع الكثرة. - التاء المربوطة والتاء المفتوحة في أخر الألفاظ: التاء المربوطة (القصيرة) في آخر الألفاظ ، التاء المفتوحة (الطويلة، المبسوطة) في آخر الألفاظ. - الفرق بين الضاد والظاء: صوت الضاد – حرف الضاد، صوت الظاء – حرف الظاء. - الهمزة وقواعد كتابتها: همزة الوصل وهمزة القطع. - علامات الترقيم: مواضع علامات الترقيم ، علامات التنقيط. - الأغلاط اللغويَّة الشائعة: الأغلاط اللغوية، النحوية، الصرفية، الإملائية. - الشاعر محمد مهدي الجواهري: حياته، مؤلفاته. - الشاعر بدر شاكر السياب: حياته، مؤلفاته.	

Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	- الاستراتيجية الرئيسية التي سيتم تبنيها في تقديم هذه الوحدة هي تشجيع الطلاب على المشاركة في التمارين والتطبيقات النحوية والإملائية، مع تحسين مهارات التفكير والتحليل في الوقت نفسه. ويتم تحقيق ذلك عن طريق الفصول والبرامج التعليمية التفاعلية والنظر في أنواع التطبيقات التي تتضمن بعض الأنشطة التي تهم الطلبة.

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**33**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**2**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**17**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**1**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**50**		

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 8**
	Projects / Lab.	**1**	**10% (10)**	**Continuous**	**All**

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	اللغة العربيَّة : خصائصها وأهميتها.
Week 2	أقسام الكلمة والمبني والمعرب منها.
Week 3	العدد وأحكامه.
Week 4	المشتقات: ومنها (اسم الفَاعِل، اسم المفْعُول، صيغ المبالغة ...).
Week 5	قواعد كتابة التاء المربوطة والمفتوحة في آخر الألفاظ.
Week 6	الهمزة وقواعد كتابتها.
Week 7	امتحان نصف الفصل.
Week 8	المبتدأ والخبر.
Week 9	الفاعِل ونائب الفاعِل.
Week 10	جمع التكسير وأنواعه.
Week 11	علامات الترقيم: تعريفها وأنواعها ومواضع كل منها.
Week 12	الفرق بين الضاد والظاء.
Week 13	الأغلاط اللغويَّة الشائعة.
Week 14	الأدب: الشعراء العراقيون: - الشاعر العراقي محمد مهدي الجواهري. - الشاعر العراقي بدر شاكر السياب.
Week 15	مراجعة للمنهج قبل الامتحان النهائي.

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	القرآن الكريم. اللغة: التطبيق الصرفي: د. عبده الراجحي. جامع الدروس العربيَّة: الشيخ مصطفى الغلاييني. السلامة اللغويَّة: د. علاء حسن مشكور. شرح ابن عقيل: ابن عقيل، تحقيق: محمد محي الدين عبد الحميد. فقه اللغة العربيَّة وخصائصها: د. إميل بديع يعقوب. كيف تكتب بحثاً أو رسالة : د. أحمد شلبي. الوجيز في اللغة العربيَّة: أ.د. محيي هلال السرحان. الأدب العربي:	Yes

	- ديوان بدر شاكر السياب: بدر شاكر السياب. - ديوان الجواهري: محمد مهدي الجواهري. - الشعر العراقي الحديث مرحلة وتطور: د. جلال الخياط.	
Recommended Texts		
Websites		

متحجرات لا فقارية ١ – المرحلة الثانية / الفصل الأول

Module Information **معلومات المادة الدراسية**			
Module Title	**Invertebrate Fossils I**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO2308**		
ECTS Credits	**6.00**		
SWL (hr/sem)	**150**		
Module Level	**UGII**	**Semester of Delivery**	**Three**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Afrah H. Saleh AL-Ekabi**	**e-mail**	**afrah.saleh @sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Assistant Professor**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**d.Anwar Khadem &Assi. Luay Sameer**	**e-mail**	**anwar.mousa@sc.uobaghdad.edu.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules **العلاقة مع المواد الدراسية الاخرى**			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**GEO-2412**	**Semester**	**Four**

Module Aims, Learning Outcomes and Indicative Contents **اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية**	
Module Aims **اهداف المادة الدراسية**	١. **This module on individual projects and provides the students more information about the main phylum of animals.** ٢. **Training the student to understand the shapes, modes of preservation, classification, nomenclature of species and genera.**
Module Learning	١. **beneficialness the specifying geological time then educing the paleo**

Outcomes **مخرجات التعلم للمادة الدراسية**	**environment.** **٢. Acquiring the skill of distinguishing between different geological formations.** **٣. Dealing with the basic laws of various earth sciences.** **٤. Using the principle of the past as a key to the present in reconstructing the geological history of the earth's formation and development.**
Indicative Contents **المحتويات الارشادية**	**١. Invertebrate Fossils is a branch of Geology which deals with an animal without a backbone. In fact, invertebrates don't have any any bones at all! Invertebrates that you may be familiar with include spiders, worms, snails, lobsters, crabs and insects like butterflies. However, humans and other animals with backbones are vertebrates. It focuses primarily on stratified phylum of animals that includes types of marine organisms & Mode of life [15 hrs]** **٢. The principles on which the Invertebrate Fossils studies are based include order variety phylum of animals, [15 hrs].** **٣. an organism must be an animal to be classified as an invertebrate, meaning they are members of the kingdom Animalia. [15 hrs].** **٤. the species in question must lack a notochord during embryonic development and a backbone, also called a spine, and a spinal cord.** **٥. The majority of living animals are invertebrates. Invertebrates lack a backbone. [15 hrs].** **٦. Invertebrates may have an incomplete or a complete digestive system.** **٧. Invertebrates vary in how they move and in the complexity of their nervous system. And Most invertebrates reproduce sexually. [15 hrs].** **٨. They bring beauty into our lives, ensure we have food on our plates, and are at the heart of a healthy environment. The services they perform—pollinating, dispersing seeds, becoming food for wildlife, recycling nutrients, cleaning water, building reefs—are critical to life on our planet.**
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	**١. Hands-on Experience: Hands-on experience allows students to develop observational skills, make connections between theoretical concepts and real-world examples, and enhance their understanding of stratigraphic principles.** **٢. Visual Aids: Utilize visual aids, such as diagrams, charts, maps, and photographs, to help students visualize and comprehend stratigraphic concepts.** **٣. Virtual Resources: Take advantage of virtual resources, such as interactive online modules. These resources can provide students with immersive experiences, allowing them to explore stratigraphic principles and study geological features virtually.** **٤. Case Studies and Real-life Examples: Present case studies and real-life examples that illustrate the application of stratigraphic principles in various contexts, such as paleoenvironmental reconstructions, or geological hazard assessments. These examples can help students understand the practical significance of the course.** **٥. Laboratory Work: Conduct laboratory exercises that involve the description and interpretation of samples. Encourage students to the laboratory data.** **٦. Collaborative Learning: Foster collaborative learning environments where students can work in groups or pairs to solve problems, analyze data. This approach encourages active engagement, promotes discussions, and allows students to learn from one another's perspectives and insights.** **٧. Multimedia Resources: Incorporate multimedia resources, such as videos,**

	animations, and online lectures, to supplement traditional teaching methods. Multimedia resources can help reinforce key concepts. ٨. Allows students to monitor their progress, identify areas of improvement, and reinforces learning. ٩. Integration of Technology: Utilize geospatial software, stratigraphic modeling tools, and other technology-based resources to enhance the learning experience.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	80	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	70	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) 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 8
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2hr	10% (10)	8	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction of Paleontology
Week 2	Modes of Preservation
Week 3	Rules of species nomenclature & Time Geological Scale
Week 4	Habit (Mode of life) of marine organisms
Week 5	Taphonomy & Preservation
Week 6	Foraminifera
Week 7	Foraminiferal Test, Wall & Aperture
Week 8	Midterm Exam
Week 9	Radiolaria
Week 10	Classification of Radiolaria
Week 11	Phylum of Porifera (Sponge)

Week 12	**Classification of Porifera (Sponge)**
Week 13	**Phylum Coelentrata (Cnidaria)**
Week 14	**Phylum Bryozoa**
Week 15	**Preparatory**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	**Lab1 : Introduction of Paleontology**
Week 2	**Lab2 : Modes of Preservation**
Week 3	**Lab3 : Rules of species nomenclature & Time Geological Scale**
Week 4	**Lab4 : Habit (Mode of life) of marine organisms**
Week 5	**Lab5 : Taphonomy & Preservation**
Week 6	**Lab6 : Forms of preservation**
Week 7	**Lab7 : Foraminifera**
Week 8	**Lab8 : Foraminiferal Test, Wall & Aperture**
Week 9	**Lab9 : Radiolaria**
Week 10	**Lab10 : Classification of Radiolaria**
Week 11	**Lab11 : Phylum of Porifera (Sponge)**
Week 12	**Lab12 : Classification of Porifera (Sponge)**
Week 13	**Lab13 : Phylum Coelentrata (Cnidaria)**
Week 14	**Lab14 : Phylum Bryozoa**
Week 15	**Lab15: Preparatory**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	**١. Fossils and Evolution – The theory and its supporting evidence د. عامر الخفاجي** **٢. Foraminifera – جوزيف كوشمان** **٣. principles of paleontology. Moore**	**Yes**
Recommended Texts	**مبادئ علم المستحاثات او المتحجرات شفيق مهدي**	**No**
Websites	**http://www.sepmstrata.org/page.aspx?pageid=229**	

Module Information معلومات المادة الدراسية			
Module Title	**Optical Mineralogy**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO2309**		
ECTS Credits	**6.00**		
SWL (hr/sem)	**150**		
Module Level	**UGII**	**Semester of Delivery**	**Three**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Hasan Kattoof Jasim**	**e-mail**	**Hasan.jasim@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**Maysoon Omer Ali**	**e-mail**	**maysoon.ali@sc.uobaghdad.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**GEO-1205**	**Semester**	**Two**
Co-requisites module	**GEO-2413**	**Semester**	**Four**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**١. Optical Mineralogy aims to introduce the student to this very important science, which has many applications especial the identification the mineral through the polarizing microscopre, as rocks are composed in nature of minerals, and therefore the earth's crust will also be composed of minerals, which will affect many of the events that occur in the earth's crust, as well as the economic importance of minerals, which are included in Lots of industries.** **٢. Optical Mineralogy is important not only in the study of minerals, but it has many practical applications in the field of medicine, engineering, agriculture and forensics** **٣. Optical Mineralogy also aims to recognize that minerals are the main source of chemical elements, which are considered the basic element of many sciences, especially chemistry, physics and engineering branches.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**١. Learn about the identification of minerals under the polarizing microscope** **٢. Training on making thin section of minerals and rock types in geological workshops and how to manufacture them**

	٣. Training on how to use a polarizing microscope, learn about all its parts, how to maintain it and replace its parts ٤. Training on the skills of dealing with rock and mineral samples and how to determine the appropriate section for making slides
Indicative Contents **المحتويات الارشادية**	١. Optical Mineralogy aims to know the identification of minerals through the polarizing microscope by using thin section of minerals and rocks and friable sediments ٢. Optical Mineralogy is the main branch of geology , , and this science is important, especially in mineral diagnostic processes that have many applications, especially in the classification of rocks, as well as the diagnosis of minerals of economic importance ٣. Optical Mineralogy is not only concerned with the identification of minerals and rocks, but it is possible to study many applications through a polarizing microscope, such as dental slides, seeds, and the components of dust storms
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	١. Mastering work skills in geological workshops and learning about the types of devices available in them and how to operate them ٢. Training and mastering the process of making thin slices of minerals and rocks and getting acquainted with the most important materials needed to manufacture thin slices of minerals and rocks and mastering the manufacturing steps ٣. Mastering the process of diagnosing minerals through the optical properties of minerals and the relationship of polarized light to minerals when light penetrates a mineral slice ٤. Understanding and comprehending the basic characteristics of each mineral and what is the basic characteristic of the diagnosis through which the move is made to determine the mineral composition of the three types of igneous, sedimentary and metamorphic rocks

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**70**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**4**
Total SWL (h/sem) **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 8
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2hr	10% (10)	8	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100		

	Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	**Introduction to Optical Mineralogy**
Week 2	**The Nature and properties of Light, retardation , vibration , wave length**
Week 3	**Concept and Methods of Polarization: Types of Polarizers, Minerals as Polarizers**
Week 4	**Types of polarized Light : Generation of Polarized light, Minerals and polarized light**
Week 5	**Refraction of Light and Snell's Low: Concepts, Applications, Methods of Measurements**
Week 6	**Types of polarizes microscopes: Transmitted and Reflected Light microscopes**
Week 7	**Optical Poetries: Concepts of optical properties, and who they work on minerals**
Week 8	**Mid Theoretical Examination.**
Week 9	**Plane Polarized Light Properties Color and Peleochroism**
Week 10	**Relief, Cleavage and Refractive Index**
Week 11	**Form and Habit of Minerals**
Week 12	**Cross Nichols Polarized light Properties , Quartz Wedges**
Week 13	**Extinction, Twining, Interference Colors, Accessories Plates**
Week 14	**Sign of Elongation and Interference Figures and Optic Sign , Optical Indicatrix, Rock Forming minerals**
Week 15	**Preparatory week**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	**Lab 1: Introduction and applications of Optical Properties**
Week 2	**Lab 2: Sample preparation for thin section preparation , Parts of Microscopes**
Week 3	**Lab 3: Types of Samples and Epoxy**
Week 4	**Lab 4: Plane polarized Light Properties**
Week 5	**Lab 5: Color and Paleochroism**
Week 6	**Lab 6: Cleavage**
Week 7	**Lab 7: Relief and refractive Index**
Week 8	**Lab 8: Form and Habit of Minerals**
Week 9	**Lab 9: Cross Nichols polarized light properties**
Week 10	**Lab 10: Twining and Extinction**

Week 11	**Lab11: Interference colors and color order**
Week 12	**Lab 12: Interference Figures and Optic Sign**
Week 13	**Lab ١٣: Sign of Elongation**
Week 14	**Lab 14: Optical properties of common rock forming minerals**
Week 15	**Preparatory week**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	**Kerr, P.F., 1959, Optical mineralogy, McGraw-Hill., New York. 442P.**	**Yes**
Recommended Texts	**Nesse, W. D., 2000, Introduction to Mineralogy, Oxford University Press, New York, 442P.**	**No**
Websites	**https://www.coursehero.com/file/9370916/uniaxial-minerals/**	

Module Information معلومات المادة الدراسية			
Module Title	**Structural Geology I**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO2310**		
ECTS Credits	**6.00**		
SWL (hr/sem)	**150**		
Module Level	**UGII**	**Semester of Delivery**	**Three**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Janan M. Gorael**	**e-mail**	**Janan.gorael@scbaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**GEO-2414**	**Semester**	**Four**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	• **The primary goal of structural geology is to use measurements of present-day rock geometries to uncover information about the history of deformation (strain) in the rocks, and ultimately, to understand the stress field that resulted in the observed strain and geometries.** • **Also to understand the structural evolution of a particular area due to plate tectonics.** • **Understanding of the structure (geometry) of the underlying rocks is vitally important in the mining and petroleum industries.** • **Recognize, classify, measure, record and analyze geological structures at a variety of scales and represent them in field note books and upon geological maps, sections and stereograms.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	• **Understand and describe the features formed in rocks when subject to stress, analyze the strain in these rocks and interpret the Paleostress field that affected the rock and caused the deformation** • **know the brittle, ductile and plastic deformation** • **understand deformation mechanisms at micro- and macro-scales** • **describe the geometry and properties of different deformation structures**

	• run structural fieldwork and use structural field data in geometrical and kinematic analyses • Visualize and interpret structural observations and measurements.
Indicative Contents **المحتويات الارشادية**	• An understanding of stress and its origins within the lithosphere. • An understanding of strain as it relates to naturally occurring deformation. • To observe deformed rocks and find an explanation for how and why they ended up in their present state. • To understand under which physical condition the rock was formed and how the structures were made. Small models are being demonstrated how stress, strain, temperature, and pressure worked.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• Inquiry-based learning, where students explore a question or problem through observation, experimentation, or data analysis. • Peer instruction, where students answer questions and explain their reasoning. • Cooperative learning, which has students work in small groups to complete a task. • During class time, interactive activities, discussions are used.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**70**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**4**
Total SWL (h/sem) **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 8**
	Projects / Lab.	**1**	**10% (10)**	**Continuous**	**All**
	Report	**1**	**10% (10)**	**13**	**LO # 5, 8 and 10**
Summative assessment	**Midterm Exam**	**2hr**	**10% (10)**	**8**	**LO # 1-7**
	Final Exam	**2hr**	**50% (50)**	**16**	**All**
Total assessment			**100% (100 Marks)**		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	**Force (F)**
Week 2	**Composition and resolution of forces**
Week 3	**Differential forces**
Week 4	**Stress**

Week 5	**The principal stress in native**
Week 6	**Deformation and strain**
Week 7	**Isotropic materials and an isotropic material**
Week 8	**Midterm Exam**
Week 9	**Three stages of deformation**
Week 10	**Brittle and ductile deformation**
Week 11	**Young's modulus (modulus of elasticity) E**
Week 12	**Factors controlling behavior of materials**
Week 13	**Homogeneous and heterogeneous deformation**
Week 14	**Pure shear and simple shear**
Week 15	**Preparatory Week**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	**Lab 1: Introduction to Topographic Maps**
Week 2	**Lab 2: How to draw a contour map from points of known elevation.**
Week 3	**Lab 3: Geological maps for Horizontal Beds**
Week 4	**Lab 4: Geological maps for Inclined Beds**
Week 5	**Lab 5: Geological maps and cross sections**
Week 6	**Lab 6: Geological maps for Unconformity surfaces**
Week 7	**Lab 7: Geological maps for Anticline Structure**
Week 8	**Midterm Exam**
Week 9	**Lab 8: Geological maps for Syncline Structure**
Week 10	**Lab 9: Geological maps for plunging Anticline**
Week 11	**Lab 10: Geological maps for plunging Syncline**
Week 12	**Lab 11: Geological maps for double plunging structures**
Week 13	**Lab 12: Geological maps for vertical fault**
Week 14	**Lab 13: Geological maps for inclined fault**
Week 15	**Preparatory Week**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?

Required Texts	**Structural Geology Third Edition - Marland P. Billings, 1972 Structural Geology by Haakon Fossen, 2010**	**No**
Recommended Texts	**Earth Structure: An Introduction to Structural Geology and Tectonics Second Edition by Ben A. van der Pluijm and Stephen Marshak, 2004**	**No**
Websites		

علم اشكال الأرض – المرحلة الثانية / الفصل الأول

Module Information معلومات المادة الدراسية			
Module Title	**Geomorphology**	**Module Delivery**	
Module Type	**Core**	**☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar**	
Module Code	**GEO2311**		
ECTS Credits	**5.00**		
SWL (hr/sem)	**125**		
Module Level	**UGII**	**Semester of Delivery**	**Three**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Muaid Jaseem Rasheed**	**e-mail**	**muayid.j@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Assistant professor**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**Zainab Damad Hassan**	**e-mail**	**zainab.hassan@sc.uobaghdad.edu.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**GEO-2415**	**Semester**	**Four**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims اهداف المادة الدراسية	**١. This course aims to familiarize students with geomorphology and teach students how to describe and name landforms.The reason for their occurrence and then the explanation of these geomorphological phenomena. ٢. Learn the basic principles of geomorphology. ٣. Study the phenomena of weathering and erosion, their types, and their geomorphological effects on the formation of soils and sediments, their types,**

	and change. Geomorphological forms. Study of the phenomenon of desertification and geomorphology of deserts. ٤. Study of rivers, river patterns, and valley development.
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**Knowledge and understanding: Upon completion of the course, the student will be able to absorb the following knowledge and understanding skills.** • **A1- Basic knowledge in the principles of geomorphology** • **A2- Identify the basic concepts and perceptions of the branches of geomorphology.** • **A3- Knowledge of the practical aspects of some basic concepts and their field applications.** • **A4- Acquire the ability to link the theoretical aspect of the branches of geomorphology with their various applications in geomorphological fields and different landforms** • **A5- Understand the relationship of geomorphology and its connection to other branches of science.**
Indicative Contents **المحتويات الارشادية**	• **The student's liking for the subject -** • **Simplify the material with drawing** • **Notifying the student of the importance of the subject in his current and future studies.** • **Cultivating the spirit of scientific competition among students and rewarding them for it**
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	• **Introductory lectures to give students a comprehensive overview of the subject matter** • **Covering the theoretical aspect by giving lectures or using modern technologies in presenting academic courses** • **Using microscopes and stereoscopes as means of teaching and clarification** • **Assigning students to solve assignments on specific topics and then discussing them during the lesson to demonstrate the extent of their familiarity with the acquired knowledge and so that they become capable of scientific research.** • **Assigning students to visit the library and websites to obtain academic knowledge of various geological sciences**

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**45**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**3**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**125**		

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 8**
	Projects / Lab.	**1**	**10% (10)**	**Continuous**	**All**

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	**Introduction**
Week 2	**Concepts of geomorphology**
Week 3	**Concepts of geomorphology**
Week 4	**An Analysis of the Geomorphic processes**
Week 5	**Geomorphological processes and the impact of climate on them**
Week 6	**Weathering and its kinds and its Significance**
Week 7	**Soils , kinds ,profile .**
Week 8	**Midterm Exam**
Week 9	**River cycle**
Week 10	**Shapes resulting from river meanders**
Week 11	**Landslide**
Week 12	**Drainage Patterns and their Significance**
Week 13	**River terraces**
Week 14	**Deserts and Sand dunes**
Week 15	**Preparatory Week**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	**Lab 1: Introductions**
Week 2	**Lab 2: Contour Map**
Week 3	**Lab 3: Topographic Map 1**
Week 4	**Lab 4: Topographic Map 2**
Week 5	**Lab 5: Scales of Maps**
Week 6	**Lab 6: Longitude& Latitude**
Week 7	**Lab 7: Stream order & stream density**
Week 8	**Lab 8: Midterm Exam**

Week 9	**Lab 9: Generalized**
Week 10	**Lab 9: Slop map 1**
Week 11	**Lab 10: Slop map 2**
Week 12	**Lab 11: Map with v. shape**
Week 13	**Lab 12: v" rule"1**
Week 14	**Lab 13: v" rule"2**
Week 15	**Preparatory Week**

Learning and Teaching Resources **مصادر التعلم والتدريس**		
References	**Text**	**Available in the Library?**
Required Texts	**Fundamental of Geomorphology**	**Yes**
Recommended Texts	**According to the geomorphology titles in the course.**	**Yes**
Websites		

اللغة الانكليزية ٢ – المرحلة الثانية / الفصل الأول

Module Information **معلومات المادة الدراسية**			
Module Title	**English Language II**	**Module Delivery**	
Module Type	**Supportive**	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**UOB206**		
ECTS Credits	**2.00**		
SWL (hr/sem)	**50**		
Module Level	**UGII**	**Semester of Delivery**	**Three**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Mohammed Hassan Nasser**	**e-mail**	**mohammed.nasser@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**PhD**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**
Relation with other Modules **العلاقة مع المواد الدراسية الاخرى**			

Prerequisite module	UOB-112	Semester	One
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents
اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية

Module Aims **اهداف المادة الدراسية**	**١- To build upon the foundational English skills acquired in the first year, focusing on scientific contexts.** **٢- To improve students' ability to read and comprehend scientific texts.** **٣- To enhance writing skills for scientific reports, summaries, and essays.** **٤- To develop effective oral communication skills for presentations and discussions.** **٥- To expand vocabulary, including scientific terminology.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**1. Scientific Vocabulary Proficiency** • **Students will acquire and effectively use scientific vocabulary relevant to their specific disciplines (e.g., biology, chemistry, physics).** • **Measurement: Assessed through vocabulary quizzes, scientific reports, and oral presentations.** **2. Improved Reading Comprehension of Scientific Texts** • **Students will be able to comprehend and critically analyze scientific articles, research papers, and textbooks written in English.** • **Measurement: Assessed through reading comprehension exercises, article summaries, and analysis tasks.** **3. Effective Scientific Writing Skills** • **Students will develop the ability to write clear, structured, and concise scientific reports, essays, and research papers in English.** • **Measurement: Assessed through writing assignments such as lab reports, research summaries, and essays that adhere to academic standards.** **4. Development of Listening Skills in Scientific Contexts** • **Students will improve their ability to understand spoken English in scientific contexts, including lectures, discussions, and multimedia content.** • **Measurement: Assessed through listening tests based on scientific podcasts, video lectures, and discussions on relevant topics.** **5. Effective Oral Communication in Science** • **Students will be able to deliver structured, confident oral presentations on scientific topics and engage in academic discussions using proper English.** • **Measurement: Assessed through oral presentations, group discussions, and debates on scientific issues.** **6. Enhanced Critical Thinking and Problem-Solving** • **Students will demonstrate critical thinking skills by analyzing, interpreting, and discussing scientific data and literature in English.** • **Measurement: Assessed through class discussions, critical reviews, and written responses to case studies or research findings.** **7. Collaboration and Teamwork in English** • **Students will work effectively in teams to produce joint projects, written assignments, or presentations, using English as the medium of communication.** • **Measurement: Assessed through group work and collaborative projects, such as co-written reports or group presentations on scientific topics.** **8. Understanding of Cross-Cultural Communication in Science** • **Students will develop an understanding of the role of English as a global**

	language in science, enhancing their ability to communicate in international academic and professional settings. • **Measurement: Assessed through participation in discussions about global scientific research, cultural contexts of science, and attending (or simulating) scientific conferences in English.** **9. Use of Technology for Language Learning and Research** • **Students will utilize digital tools and online resources effectively for language development and scientific research in English.** • **Measurement: Assessed through assignments that require students to use scientific databases, online journals, or language learning platforms.** **10. Academic Integrity and Ethical Communication** • **Students will understand and apply academic integrity principles, including proper citation and avoidance of plagiarism in English-language scientific writing.** • **Measurement: Assessed through written assignments that require proper citation of sources and adherence to academic writing standards.**
Indicative Contents **المحتويات الارشادية**	**1.Vocabulary and Terminology** • **Focus: Introducing and practicing essential scientific vocabulary relevant to various disciplines (biology, chemistry, physics, etc.).** • **Content: Word formation, use of prefixes/suffixes in scientific terms, and discipline-specific glossaries.** **2. Reading and Analyzing Scientific Texts** • **Focus: Developing strategies for reading comprehension and analysis of scientific literature.** • **Content: Skimming and scanning techniques, identifying main ideas and supporting details, and critical analysis of journal articles and research papers.** **3. Writing and Structure** • **Focus: Teaching the principles of scientific writing with emphasis on clarity, precision, and structure.** • **Content: Writing lab reports, abstracts, research papers, and scientific essays, including sections like introductions, methods, results, and discussions.** **4. Listening to Scientific Content** • **Focus: Enhancing listening skills through exposure to scientific lectures, podcasts, and discussions.** • **Content: Listening exercises based on TED talks, scientific seminars, and interviews with scientists, focusing on note-taking and extracting key information.** **5. Oral Presentation Skills**

	• **Focus: Training students in delivering presentations on scientific topics using clear and professional English.** • **Content: Presentation techniques, using visual aids (PowerPoint, posters), structuring talks, and handling Q&A sessions.**
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	**1. Tailored Curriculum** • **Contextualization: Focus on scientific English, incorporating vocabulary and structures relevant to their field of study.** • **Integrating Language and Content: Combine English learning with scientific content to enhance both language and discipline-specific knowledge.** **2. Communicative Language Teaching (CLT)** • **Emphasis on Interaction: Encourage students to communicate in English, using real-life scenarios like presentations, lab reports, and scientific discussions.** • **Speaking and Listening Skills: Engage students in group discussions, debates, and role-plays about scientific topics.** **3. Task-Based Learning (TBL)** • **Practical Assignments: Use tasks such as writing abstracts, summaries of scientific articles, or conducting experiments and presenting results in English.** • **Problem-Solving Activities: Organize problem-based learning activities that require students to work in English, fostering collaboration and language use in context.** **4. Collaborative Learning** • **Group Projects: Encourage group work on projects like poster presentations or scientific writing tasks, promoting teamwork and communication skills.** • **Peer Learning: Facilitate peer review sessions where students critique each other's work, fostering critical thinking and language practice.** **5. Scaffolded Learning** • **Gradual Progression: Break down complex scientific texts and language into smaller, manageable units, providing step-by-step support.** • **Use of Visual Aids: Incorporate diagrams, charts, and visuals to simplify complex ideas and help students grasp scientific concepts in English.** **6. Use of Technology**

- **Language Learning Apps: Encourage the use of apps that focus on vocabulary building, grammar, and listening comprehension.**
- **Online Resources: Use online journals, podcasts, and videos related to science topics for listening practice and expanding scientific vocabulary.**

7. Writing Skill Development

- **Scientific Writing Focus: Teach students how to write lab reports, research papers, and scientific essays with correct structure and academic language.**
- **Drafting and Revising: Implement processes of drafting, peer feedback, and revision to help students improve their academic writing.**

8. Assessment and Feedback

- **Formative Assessment: Use quizzes, oral presentations, and written assignments to assess language development continuously.**
- **Feedback Focus: Provide detailed feedback on language use, especially on scientific terminology, grammar, and coherence in writing.**

9. Motivation and Engagement

- **Relating to Students' Interests: Use content that is interesting and relevant to science students, such as scientific discoveries, experiments, or technology updates.**
- **Gamification: Incorporate games and quizzes on scientific vocabulary and language skills to make learning more engaging.**

10. Cultural Awareness and Communication

- **Cross-Cultural Communication: Teach students the importance of English as a global language in science and technology, highlighting its use in international research and conferences.**

Understanding Contexts: Encourage discussions on scientific breakthroughs in English-speaking countries to provide cultural and contextual language learning.

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**33**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**2**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**17**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**1**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**50**		

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 8**
	Projects / Lab.	**1**	**10% (10)**	**Continuo**	**All**

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Review of Basic Grammar and Vocabulary • Revisiting basic grammar rules (sentence structure, tenses, subject-verb agreement). • Introduction to more complex sentence structures (compound and complex sentences).
Week 2	Building vocabulary with a focus on science-related terms.
Week 3	Reading Comprehension of Scientific Texts • Strategies for reading and understanding scientific articles and textbooks.
Week 4	Identifying main ideas, supporting details, and conclusions in texts. • Exercises in summarising and paraphrasing scientific information.
Week 5	Writing Skills for Science • Writing clear and concise sentences. • Paragraph structure: topic sentences, supporting details, and conclusions.
Week 6	Introduction to writing scientific reports and essays. • Practice with short writing assignments.
Week 7	Introduction to Scientific Writing • Basic structure of scientific papers and lab reports. • Writing introductions, methods, results, and discussion sections. • Common mistakes in scientific writing at an intermediate level.
Week 8	Midterm Exam
Week 9	Oral Communication and Presentation Skills • Fundamentals of public speaking in a scientific context. • Planning and organising presentations.
Week 10	Using visual aids effectively (e.g., slides, charts). • Practicing short presentations on scientific topics.
Week 11	Technical Vocabulary and Language in Science • Expanding science-specific vocabulary. • Using technical terms correctly in context.
Week 12	Exercises in using scientific terminology in writing and speech. • Understanding and using prefixes, suffixes, and root words common in scientific language.
Week 13	Practical Writing and Speaking Exercises • Writing a short research report or essay on a scientific topic. • Peer review and feedback sessions. • Preparing and delivering a final presentation on a scientific topic. • Role-playing exercises for group discussions and Q&A sessions.
Week 14	Revision and Final Assessment • Review of key concepts and skills learned during the course. • Practice exercises for the final exam.

	• **Final presentations and peer evaluations.**
Week 15	**Preparatory Week**

Learning and Teaching Resources **مصادر التعلم والتدريس**		
References	**Text**	**Available in the Library?**
Required Texts	**New Headway: Intermediate: Student's Book**	**Yes**
Recommended Texts	• **English for Science and Technology" by Louis Trimble.** • **"Academic Vocabulary in Use" by Michael McCarthy and Felicity O'Dell.** • **Selected readings from scientific journals and textbooks relevant to students' fields.**	**No**
Websites		

Module Information معلومات المادة الدراسية			
Module Title	**Computer Skills Basic II**	**Module Delivery**	
Module Type	**Basic**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**UOB207**		
ECTS Credits	**3.00**		
SWL (hr/sem)	**75**		
Module Level	**UGII**	**Semester of Delivery**	**Three**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr. Imad Jasim**	**e-mail**	**emad.j@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**Abdallah A. Ibrahim Omar Fitian Rasheed**	**e-mail**	**abdullah.i@sc.oubaghdad.edu.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**UOB-113**	**Semester**	**One**
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	• This module aims to provide students with a practical and theoretical foundation in computer programming using Python and geospatial analysis using ArcGIS/ArcMap. It is designed to enhance computational thinking, problem-solving skills, and spatial data handling through real-world applications. The module prepares students for further study or careers involving programming and geographic information systems.
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	By the end of this module, students will be able to: ١. Explain core concepts of programming and demonstrate proficiency in Python syntax and logic. ٢. Apply conditional statements, loops, and data structures in problem-solving tasks. ٣. Use ArcGIS/ArcMap tools to manage, analyze, and visualize spatial data effectively. ٤. Create professional map layouts and perform spatial operations using standard GIS tools.

	٥. Design and implement custom vector layers for digitizing real-world geographic features. ٦. Integrate programming logic with geospatial analysis to solve applied computing problems.
Indicative Contents **المحتويات الارشادية**	• Introduction to Python and basic syntax • Variables, operations, and data types • Control structures: loops and conditionals • Data structures: lists and dictionaries • Introduction to ArcGIS and ArcMap interface • Selection methods and attribute tables in ArcMap • Working with layer properties and symbology • Map design and layout view • Geoprocessing tools (Buffer, Clip, Intersect, etc.) • Creating and editing vector layers • Integration of Python concepts in GIS contexts • Midterm and practical assessments • Final project or exam preparation
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	• Lectures to introduce theoretical concepts and real-world applications • Hands-on lab sessions to reinforce programming and GIS skills through practical exercises • In-class demonstrations of software tools (Python IDEs, ArcMap functionalities) • Group discussions and problem-solving tasks to encourage collaborative learning • Formative assessments to provide feedback and track student progress • Summative assessments including a midterm and final project or exam to evaluate learning outcomes • Independent study to explore resources and complete assignments outside class hours

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**50**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**3**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**25**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**1**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**75**		

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 8**
	Projects / Lab.	**1**	**10% (10)**	**Continuous**	**All**
	Report	**1**	**10% (10)**	**13**	**LO # 5, 8 and 10**

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	**Introduction to Python Programming** • What is Python? History and evolution • Key features and advantages of Python • Common uses of Python (Web development, Data analysis, AI, GIS)
Week 2	**Python Variables** • Definition and declaration of variables • Naming conventions • Basic data types: integers, floats, strings, booleans • Type conversion and type checking
Week 3	**Python Operations** • Arithmetic and logical operators • Operator precedence • String operations and concatenation • Assignment and comparison operators
Week 4	**Python Lists** • What is a list? Use cases and syntax • Indexing and slicing • Iterating through lists • Common list methods: append(), remove(), len(), sort()
Week 5	**For Loops in Python** • Concept of iteration • for loop structure and range() function • Looping through strings and lists • Nested loops and practical examples
Week 6	**If Statements in Python** • Conditional logic: if, elif, else • Relational and logical operators • Practical scenarios using decision-making structures
Week 7	**Python Dictionaries**

	• Introduction to dictionaries: key-value pairs • Adding, updating, and deleting items • Looping through dictionaries • Dictionary methods and use cases
Week 8	**Midterm Exam**
Week 9	**Introduction to ArcGIS and ArcMap Interface** • Overview of Geographic Information Systems (GIS) • Real-world applications of ArcGIS • Components and layout of the ArcMap interface
Week 10	**ArcMap Selection Methods** • Feature selection: by clicking, attributes, and location • Using "Select by Attributes" and "Select by Location" tools • Combining selection methods for advanced filtering
Week 11	**ArcMap Layer Properties** • Understanding layers in GIS • Symbolization and classification • Managing table attributes and visibility
Week 12	**Layout View in ArcMap** • Difference between Data View and Layout View • Designing final map layouts
Week 13	**Geoprocessing Tools in ArcMap** • Introduction to spatial analysis • Tools like Buffer, Clip, Union, Intersect • Navigating and using ArcToolbox
Week 14	**Creating Vector Layers in ArcMap** • Types of vector data: point, line, polygon • Creating and editing new shapefiles • Attribute editing and feature drawing
Week 15	**Preparatory Week**

Delivery Plan (Weekly Lab. Syllabus) **المنهاج الاسبوعي للمختبر**	
Week	**Material Covered**
Week 1	**Introduction to Python**

	• Installing Python and setting up the environment • Using IDEs (e.g., IDLE, VS Code, Jupyter Notebook) • Writing and running your first Python script • Understanding syntax and indentation rules
Week 2	**Working with Variables** • Declaring variables and assigning values • Using input() for user input • Displaying output using print() • Simple programs involving variables and data types
Week 3	**Python Operations** • Performing arithmetic operations • Using comparison and logical operators • Writing expressions and evaluating results • Mini projects using calculations and logic
Week 4	**Python Lists** • Creating and modifying lists • Accessing elements using indexing • Iterating through lists with loops • Using list methods (append, insert, pop, etc.)
Week 5	**For Loops in Practice** • Writing for loops with range() • Looping through lists and strings • Nested loops • Loop-based exercises (e.g., number sequences, patterns)
Week 6	**If Statements** • Implementing conditional statements (if, elif, else) • Logical branching in code • Combining conditions using and, or, not • Problem-solving with conditions (e.g., grade checker)
Week 7	**Python Dictionaries** • Creating and accessing dictionaries • Adding and removing key-value pairs • Iterating over dictionaries using loops • Sample exercises using real-world data structures
Week 8	**Midterm Exam**
Week 9	**Introduction to ArcGIS and ArcMap Interface**

	• Opening ArcMap and exploring the interface • Adding data layers and exploring the Table of Contents • Understanding basic map navigation tools • Loading shapefiles and viewing attribute tables
Week 10	**Selection Methods in ArcMap** • Selecting features by attributes • Selecting features by location • Combining multiple selection methods • Highlighting and exporting selected features
Week 11	**Working with Layer Properties** • Changing symbology (color, size, style) • Classifying data based on attributes • Setting transparency and scale ranges • Managing label properties
Week 12	**Using Layout View** • Switching to Layout View • Inserting map elements: title, legend, north arrow, scale bar • Arranging layout components for presentation • Exporting maps to PDF or image formats
Week 13	**Using Geoprocessing Tools** • Performing Buffer, Clip, and Intersect operations • Accessing tools from ArcToolbox • Saving outputs and understanding tool parameters • Applying tools to solve spatial problems
Week 14	**Creating Vector Layers** • Creating new shapefiles (point, line, polygon) • Using the Editor toolbar to draw features • Adding and editing attribute data • Saving and managing custom layers
Week 15	**Preparatory Week**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	**Text**	**Available in the Library?**
Required Texts	**Python Crash Course**	**No**
Recommended Texts		
Websites	**ArcMap Documentation:**	

	https://desktop.arcgis.com/en/documentation/ **Youtube Channel:** **https://youtu.be/egyyIFlbrvU?si=EVZL-IAJDX3Yw-UP**

Module Information معلومات المادة الدراسية			
Module Title	**Baath Regine Crimes in Iraq**	**Module Delivery**	
Module Type	**Supportive**	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**UOB208**		
ECTS Credits	**2.00**		
SWL (hr/sem)	**50**		
Module Level	**UGII**	**Semester of Delivery**	**Three**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr. Mohanad Ahmed Yaseen**	**e-mail**	**mohannad.ahmed@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	١. ان االجيال الحالية لم تعيش فترة الدكتاتورية والكثير منهم اليعرف معاناة الشعب والجرائم التي ارتكبها النظام المقبور ٢. بيان مدى سوء حكم النظام الشمولي والذي لم يقتصر فقط على داخل العراق بل على دول المجاور له ٣. توعية الطلبة على االضرار الكبيرة التي احدثها النظام البائد والجرائم التي ارتكبها بحق الشعب العراقي ٤. أظهار االضرار االقتصادية واالجتماعية والتنموية التي أحدثها النظام السابق ٥. بيان مدى وحشية النظام البائد واإلعدامات الجماعية ٦. بيان االساليب القمعية التي مارسها النظام البائد والتهجير القصري ٧. كبح الحريات العامة وتدهور مستوى االعالم والثقافة٧. -توضيح االضرار البيئية والزراعية التي ظهرت آثارها في السنوات السابقة والحالية ٨. بيان مدى سوء حكم النظام الشمولي والذي لم يقتصر فقط على داخل العراق بل على دول المجاورة ايضا ٩. ان الهدف من تدريس هذه المادة لمعرفة تاريخ تلك الحقبة السوداء ١٠. الهدف من هذه المادة ان الحكم في العراق لن يدوم باستخدام أدوات العنف والقوة مهما كانت مفرطة ١١. والعراق يجب ان يحكم بنظام سياسي يحترم العراقيين ومعتقدات ودياناتهم وقومياتهم وان يؤمن بالتعدد في المجتمع العراق

Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	١- التعرف على الجرائم النظام البائد في كبح الحريات العامة ٢- دراسة االنظمة السياسية في العراق نبذة تاريخية ٣- معرفة ابرز انتهاكات النظام البعثي للحقوق والحريات ٤- معرفة اثر سلوكيات النظام البعثي المقبور على المجتمع العراقي ٥- التوضيح لالجيال الحالية حقيقة حقبة تاريخية سوداء في تأريخ العراق المعاصر التي شهدت الظلم واالستبداد ٦- االطالع على وحشية واستبداد وقمع النظام البائد للشعب العراقي ٧- معرفة ان الظلم واالستبداد والحكم الدكتاتوري لن يدوم مهما كانت قسوته ٨- تعليم الطلبة وارشادهم على النظام السياسي الصحيح لحكم هذا الشعب الطيب. والذي يجب ان يبتعد عن ٩- الدكتاتورية والظلم وان يكون مبنى على العدالة واحت ارم التعددية الدينية والمذهبية والقومية توعية الطلبة الى حجم الدمار والتلوث البيئي الذي احدثته الحروب واستخدام اسلحة محرمة دوليا ١٠-بيان مدى قسوة النظام البعثي وقمعه للشعب والمقابر الجماعية التي ضمت رفاة آالف الشهداء االبرياء ١١-توعية الطلبة الى ماقام به النظام السابق من تهجير ابناء هذا البلد وكفائته العلمية واالدبية
Indicative Contents **المحتويات الارشادية**	• يتضمن المحتوى اإلرشادي ما ي الوصول حزب ً العراق من قبل بريطانيا وصوال ي يس ف البداية تتضمن نبذة تاريخية عن النظام السيا ي مقدمة ف البعث المقبور ال السلطة وكذلك دراسة جرايم حزب البعث منذ توليه السلطة والعبث بها كذلك توضيح ما اصاب العراق من اثار وكوارث عل يد هذا النظام الدكتاتوري المجرم الذي جسد اقس انواع التعسف والظلم والطغيان واالستبداد كذلك ارشاد الطلبة ال ان الظلم واالستبداد يدمر الشعوب ويجر الويالت عليها وبيان االثار بة ت التحتية والي ر كل مفاصل البالد فدمرت الب ي رتي خلفت ورائها تدمري ف رتي حدثت نتيجة الحروب العبثية ال ال ٣رشق االوسط .كذلك تم تدمري كانت من افضل بلدان ال رتي ي هذه البالد وال والمياه والسماء واالشجار وكل رسئ ف ضر االبار النفطية ي حرب الكويت والخسائر االقتصادية الهائلة وت حرت البيئة المائية من خالل تشيب النفط ف رتي والب الزلنا ال يومنا هذا نرفع اثار ت التحتية والصناعة وفرض حصار دمر البيئة االجتماعي ة واالقتصادية ال يل .يل والداخ النظام البائد عل الصعيد الدولي
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	• اإلستراتيجية المهمة التي تم تبنيها في هذه الوحدة هي توعية الطلبة وعملية تنمية مداركهم العقلية على فهم النظام السياسي العراقي البائد ومعرفة الجرائم التي ارتكبها النظام البائد وعمليه تحفيز الطلبة على التامل والتفكير في التحليل هذه الجرائم وانعكاساتها والعمل على محاربة الظلم والستبداد ورفض اي شكل من اشكال الدكتاتورية كذلك استخدام البرامج التفاعلية والتعليمية في استخدام االدوات التحليلية والنقدية وتشجيع الطلبة على البحث والحوار والنقاش على اسس معرفية تستند الى عمليات البحث العلمي والتدقيق والقراءة العميقة والفهم الجيد والرصانة العلمية وكذلك استخدام الوسائل العلمية واالساليب التفاعلية سواء كانت المسموعة والمرئية واعطاء االدلة المادية الواضحة على وحشية النظام السابق لكي يطلع الطلبة وتصبح لديهم قناعة علمية راسخة على هذة الحقبة السوداء والجرائم التي لم تشهد لها البشرية مثال .كذلك تنمية القدرة الذهنية والفكرية لدى الطلبة على معرفة .ألنظمة الصالحة. كذلك تفعيل الدور ألخالقي وزرع ألخالق والقيم والمبادئ الحميدة لدى الطلب

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا**			
Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**33**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**2**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**17**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**1**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**50**		

Module Evaluation **تقييم المادة الدراسية**				
	Time/Number	**Weight**	**Week Due**	**Relevant Learning**

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	مقدمة عن انتهاكات الحقوق والحريات
Week 2	نبذة وصفية عن االنظمة السياسية في العراق
Week 3	انتهاكات النظام البعثي للحقوق والحريات العامة
Week 4	اثر سلوكيات النظام البعثي في المجتمع وتسلطه على الدولة
Week 5	اثر المرحلة االنتقالية في محاربة السياسة االستبدادية
Week 6	الميدان النفسي واالجتماعي
Week 7	الدين والدولة
Week 8	Midterm Exam
Week 9	عسكرة المجتمع والثقافة واالعالم
Week 10	اثر القمع والحروب على البيئة والسكان
Week 11	التلوث البيئي واستعمال االسلحة المحرمة دوليا
Week 12	سياسة االرض المحروقة وتجفيف االهوار
Week 13	المقابر الجماعية وتدمير البيئة الزراعية
Week 14	-
Week 15	Preparatory Week

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	منهاج جرائم حزب البعث البائد /٢٠٢٣جمهورية العراق/وزارة التعليم العالي والبحث العلمي/دائرة الدراسات والتخطيط	
Recommended Texts		
Websites		

Module Information معلومات المادة الدراسية			
Module Title	**Invertebrate Fossils II**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO2412**		
ECTS Credits	**5.00**		
SWL (hr/sem)	**125**		
Module Level	**UGII**	**Semester of Delivery**	**Four**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Afrah H. Saleh AL-Ekabi**	**e-mail**	**afrah. saleh @sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Assistant Professor**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**d.Anwar Khadem &Assi. Luay Sameer**	**e-mail**	**mailto:anwar.mousa@sc.uobaghdad.edu.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**GEO-2308**	**Semester**	**Three**
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**١- This module on individual projects and provides the students more information about the main phylum of animals.** **٢- Training the student to understand the shapes, modes of preservation, classification, nomenclature of species and genera.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**١. beneficialness the specifying geological time then educing the paleo environment.** **٢. Acquiring the skill of distinguishing between different geological formations.** **٣. Dealing with the basic laws of various earth sciences.** **٤. Using the principle of the past as a key to the present in reconstructing the geological history of the earth's formation and development.**
Indicative Contents **المحتويات الارشادية**	**١. Invertebrate Fossils is a branch of Geology which deals with an animal without a backbone. In fact, invertebrates don't have any any bones at all! Invertebrates that you may be familiar with include spiders, worms, snails, lobsters, crabs and insects like butterflies. However, humans and other animals with backbones are vertebrates. It focuses primarily on stratified phylum of animals that includes types of marine organisms & Mode of life [15 hrs]** **٢. The principles on which the Invertebrate Fossils studies are based include order variety phylum of animals, [15 hrs].**

	٣. an organism must be an animal to be classified as an invertebrate, meaning they are members of the kingdom Animalia. [15 hrs]. ٤. the species in question must lack a notochord during embryonic development and a backbone, also called a spine, and a spinal cord. ٥. The majority of living animals are invertebrates. Invertebrates lack a backbone. [15 hrs]. ٦. Invertebrates may have an incomplete or a complete digestive system. ٧. Invertebrates vary in how they move and in the complexity of their nervous system. And Most invertebrates reproduce sexually. [15 hrs]. ٨. They bring beauty into our lives, ensure we have food on our plates, and are at the heart of a healthy environment. The services they perform—pollinating, dispersing seeds, becoming food for wildlife, recycling nutrients, cleaning water, building reefs—are critical to life on our planet.
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	١. Hands-on Experience: Hands-on experience allows students to develop observational skills, make connections between theoretical concepts and real-world examples, and enhance their understanding of stratigraphic principles. ٢. Visual Aids: Utilize visual aids, such as diagrams, charts, maps, and photographs, to help students visualize and comprehend stratigraphic concepts. ٣. Virtual Resources: Take advantage of virtual resources, such as interactive online modules. These resources can provide students with immersive experiences, allowing them to explore stratigraphic principles and study geological features virtually. ٤. Case Studies and Real-life Examples: Present case studies and real-life examples that illustrate the application of stratigraphic principles in various contexts, such as paleoenvironmental reconstructions, or geological hazard assessments. These examples can help students understand the practical significance of the course. ٥. Laboratory Work: Conduct laboratory exercises that involve the description and interpretation of samples. Encourage students to the laboratory data. ٦. Collaborative Learning: Foster collaborative learning environments where students can work in groups or pairs to solve problems, analyze data. This approach encourages active engagement, promotes discussions, and allows students to learn from one another's perspectives and insights. ٧. Multimedia Resources: Incorporate multimedia resources, such as videos, animations, and online lectures, to supplement traditional teaching methods. Multimedia resources can help reinforce key concepts. ٨. Allows students to monitor their progress, identify areas of improvement, and reinforces learning. ٩. Integration of Technology: Utilize geospatial software, stratigraphic modeling tools, and other technology-based resources to enhance the learning experience

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**45**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**3**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**125**		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	Material Covered
Week 1	Phylum Brachiopoda
Week 2	Classification of Brachiopoda
Week 3	Phylum Mollusca
Week 4	Classification of Mollusca
Week 5	Phylum Mollusca / Class Pelecypoda (Bivalvia)
Week 6	Classification of Class Pelecypoda (Bivalvia) / Oysters & Rudistids
Week 7	Class Gastropoda
Week 8	Midterm Exam
Week 9	Class Cephalopoda
Week 10	Classification of Class Cephalopoda
Week 11	Phylum Arthropods/ Trilobites
Week 12	Morphology of Trilobites
Week 13	Phylum Echinodermata
Week 14	Classification of Echinodermata
Week 15	Phylum Chordata / Graptolites

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	Material Covered
Week 1	Lab١: Phylum Brachiopoda
Week 2	Lab٢: Classification of Brachiopoda
Week 3	Lab٣: Phylum Mollusca

Week 4	**Lab٤: Classification of Mollusca**
Week 5	**Lab٥: Phylum Mollusca / Class Pelecypoda (Bivalvia)**
Week 6	**Lab٦: Classification of Class Pelecypoda (Bivalvia) / Oysters & Rudistids**
Week 7	**Lab٧: Class Gastropoda**
Week 8	**Lab٨: Classification of Class Gastropoda**
Week 9	**Lab٩: Class Cephalopoda**
Week 10	**Lab١٠: Classification of Class Cephalopoda**
Week 11	**Lab١١: Phylum Arthropods/ Trilobites**
Week 12	**Lab١٢: Morphology of Trilobites**
Week 13	**Lab١٣: Phylum Echinodermata**
Week 14	**Lab١٤: Classification of Echinodermata**
Week 15	**Lab15 :Phylum Chordata / Graptolites**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	**1. Fossils and Evolution – The theory and its supporting evidence د. عامر الخفاجي** **2. Foraminifera – جوزيف كوشمان** **3. principles of paleontology. Moore**	**Yes**
Recommended Texts	**مبادئ علم المستحاثات او المتحجرات شفيق مهدي**	**No**
Websites	**http://www.sepmstrata.org/page.aspx?pageid=229**	

Module Information معلومات المادة الدراسية			
Module Title	**Petrology**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO2413**		
ECTS Credits	**5.00**		
SWL (hr/sem)	**125**		
Module Level	**UGII**	**Semester of Delivery**	**Four**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr. Maysoon Omar Ali**	**e-mail**	**Maysoon.Ali@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Assitant Professor**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**Dr. Hasan K. Jasim** **Dr. Hiba Sadoon Mimar**	**e-mail**	**Hasan.jasim@sc.uobaghdad.edu.iq** **Hiba.mimar@sc.uobaghdad.edu.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**GEO-2309**	**Semester**	**Three**
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**١. Contribute to the process of scientific progress, raise the level of education, and provide the labor market with graduates to work in all fields of the country's rocks, mineral and environmental investment.** **٢. Petrology deals with mineralogical and textural parameters for different rock types classification and physical –chemical conditions for the formation of these rocks in with different aspects of parent rocks .** **٣. Training the student on the most important methods of determining the type of rock depending on mineralogical and textural classification , and the relationship of the rocks to each other this is the key to discovery and development of minerals resources ,and because fundamental principles learned from petrology have applications in modern industry.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**١. Acquiring the ability and skill in field interpretation and elicitation.** **٢. Acquiring the skill of distinguishing between different minerals and rock tyoes.** **٣. Dealing with the basic laws of various earth sciences.**

	٤. **Using the principle of the past as a key to the present in reconstructing the geological history of the earth's formation and development.**
Indicative Contents **المحتويات الارشادية**	١. **Petrology is a branch of Geology which deals with the types of rocks in relation to the way of their formation.** ٢. **It focuses primarily on rocks that include igneous, sedimentary, and metamorphic rock. It also includes study the relationship between them [15 hrs]** ٣. **The principles on which the petrologic studies are based include order of Rock types, its classification, textural and minerals composition, [15 hrs].** ٤. **Scientific study of rocks that deals with their composition, texture,and structure; their occurrence and distribution ; and their origin in relation to physicochemical lconditions and geological processes [15 hrs].** ٥. **It is concerned with all three types of rocks –igneous, sedimentary and metamorphic .[15 hrs].** ٦. **Petrology includes the subdisciplines of experimental petrology and petrography experimental petrology involves the laboratory synthesis of rocks for the purpose of ascertaining the physical and chemical conditions under which rock formation occurs 15 hrs].**
Learning and Teaching Strategies **استراتيجيات التعلم والتعليم**	
Strategies	١. **Fieldwork and Hands-on Experience: Fieldwork is an essential component of petrology. Engage students in field trips or field-based exercises where they can observe and analyze rock outcrops, interpret sedimentary structures, and collect samples. Hands-on experience allows students to develop observational skills, make connections between theoretical concepts and real-world examples, and enhance their understanding of stratigraphic principles.** ٢. **Visual Aids: Utilize visual aids, such as diagrams, charts, maps, and photographs, to help students visualize and comprehend petrology m concepts. Use geological maps to demonstrate the distribution and relationships between different rock units and incorporate stratigraphic columns to illustrate the vertical succession of strata.** ٣. **Virtual Resources: Take advantage of virtual resources, such as interactive online modules, virtual field trips, and digital simulations. These resources can provide students with immersive experiences, allowing them to explore stratigraphic principles and study geological features virtually.** ٤. **Case Studies and Real-life Examples: Present case studies and real-life examples that illustrate the application of stratigraphic principles in various contexts, such as oil and gas exploration, paleoenvironmental reconstructions, or geological hazard assessments. These examples can help students understand the practical significance of petrology and its relevance in different disciplines.** ٥. **Laboratory Work: Conduct laboratory exercises that involve the description and interpretation of rock samples, including the identification of lithology,mineralogy** **, sedimentary structures, and fossil content. Encourage students to determine the texture and classification of hand specimen .** ٦. **Collaborative Learning: Foster collaborative learning environments where students can work in groups . This approach encourages active engagement, promotes discussions, and allows students to learn from one**

	another's perspectives and insights. ٧. Multimedia Resources: Incorporate multimedia resources, such as videos, animations, and online lectures, to supplement traditional teaching methods. Multimedia resources can help reinforce key concepts, illustrate geological processes, and provide additional visual and auditory learning opportunities. ٨. Concept Mapping: Encourage students to create charts or diagrams that depict the relationships between different petrology concepts, principles, and processes. . ٩. Continuous Assessment and Feedback: Implement regular assessments, such as quizzes, assignments, or class discussions, to gauge student understanding and provide timely feedback. This allows students to monitor their progress, identify areas of improvement, and reinforces learning. ١٠. Integration of Technology: Utilize geospatial software, stratigraphic modeling tools, and other technology-based resources to enhance the learning experience. These tools can facilitate data analysis, visualization, and interpretation, providing students with valuable skills applicable to the field of petrology.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**45**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**3**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**125**		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction to Petrology
Week 2	Rock Forming Minerals
Week 3	Igneous Rocks

Week 4	**Texture of igneous rocks**
Week 5	**Mineralogy of igneous rocks**
Week 6	**Bowen Reaction Series**
Week 7	**Structures of igneous rocks**
Week 8	**Midterm Exam**
Week 9	**Textures of sedimentary rocks**
Week 10	**Mineralogy of sedimentary rocks**
Week 11	**Sedimentary structures**
Week 12	**Metamorphic Rocks**
Week 13	**Textures of Metamorphic rocks**
Week 14	**Mineralogy of Metamorphic rocks**
Week 15	**Preparatory Week**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	**Lab 1: Introduction to Petrology**
Week 2	**Lab 2: Preparing of the thin section of petrography**
Week 3	**Lab 3: classification of Igneous Rocks**
Week 4	**Lab 4: Textures of igneous rocks**
Week 5	**Lab 5: Plutonic igneous rocks**
Week 6	**Lab 6: Volcanic igneous rocks**
Week 7	**Lab 7: Sedimentary Rocks**
Week 8	**Lab 8: Midterm Exam**
Week 9	**Lab 9: Clastic Sedimentary Rocks**
Week 10	**Lab 10: Chemical Sedimentary Rocks**
Week 11	**Lab 11: Biochemical Sedimentary Rocks**
Week 12	**Lab 12: Metamorphic Rocks**
Week 13	**Lab 13: Classification and textures of Metamorphic Rocks**
Week 14	**Lab 14: Preparatory week before the final Exam**
Week 15	**Lab 15: Preparatory Week**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	Text	Available in the Library?
Required Texts	**Raymond, 2009:The Study of Igneous, Sedimentary and Metamorphic Rocks .**	**Yes**
Recommended Texts	**Hyndman: Petrology of Igneous and Metamorphic Rocks**	**Yes**
Websites	**WWW.Geology.com**	

Module Information معلومات المادة الدراسية			
Module Title	**Structural Geology II**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO-2414**		
ECTS Credits	**5.00**		
SWL (hr/sem)	**125**		
Module Level	**UGII**	**Semester of Delivery**	**Four**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Mahmood abdulameer salman**	**e-mail**	**mahmoodalsaady@18gmail.com**
Module Leader's Acad. Title	**Assistant Professor**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**GEO-2310**	**Semester**	**Three**
Co-requisites module	**GEO-3519**	**Semester**	**Five**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	• **The primary goal of structural geology is to use measurements of present-day rock geometries to uncover information about the history of deformation (strain) in the rocks, and ultimately, to understand the stress field that resulted in the observed strain and geometries.** • **Also to understand the structural evolution of a particular area due to plate tectonics.** • **Understanding of the structure (geometry) of the underlying rocks is vitally important in the mining and petroleum industries.** • **Recognize, classify, measure, record and analyze geological structures at a variety of scales and represent them in field note books and upon geological maps, sections and stereograms.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	• **Understand and describe the features formed in rocks when subject to stress, analyze the strain in these rocks and interpret the Paleostress field that affected the rock and caused the deformation** • **know the brittle, ductile and plastic deformation** • **understand deformation mechanisms at micro- and macro-scales** • **describe the geometry and properties of different deformation**

	structures • run structural fieldwork and use structural field data in geometrical and kinematic analyses • Visualize and interpret structural observations and measurements.
Indicative Contents **المحتويات الارشادية**	• An understanding of stress and its origins within the lithosphere. • An understanding of strain as it relates to naturally occurring deformation. • To observe deformed rocks and find an explanation for how and why they ended up in their present state. • To understand under which physical condition the rock was formed and how the structures were made. Small models are being demonstrated how stress, strain, temperature, and pressure worked.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• Inquiry-based learning, where students explore a question or problem through observation, experimentation, or data analysis. • Peer instruction, where students answer questions and explain their reasoning. • Cooperative learning, which has students work in small groups to complete a task. • During class time, interactive activities, discussions are used.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**45**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**3**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**125**		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Interpretation of structure geology
Week 2	The fold and the elements of fold

Week 3	**Classification of fold**
Week 4	**Classification of fold based on the thickness of layers**
Week 5	**Dynamics of fold**
Week 6	**The fractures and types of fractures**
Week 7	**The joints**
Week 8	**Classification nof joints**
Week 9	**The faults**
Week 10	**Elements of faults**
Week 11	**Classification of faults**
Week 12	**The genetic classification of faults**
Week 13	**Mechanical of faults**
Week 14	**Criteria of faults**
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

Week	Material Covered
Week 1	**Introduction by using stereographic projection of the structural plane**
Week 2	**Determination of true dip and strike line from two apparent dips**
Week 3	**Determination of apparent dip from strike line and true dip**
Week 4	**Determination the true dip from strike line and the apparent dip**
Week 5	**Determination the elements of fold(plunging, fold axis, axial plane and inter limb angle)**
Week 6	**Define the terms of Descriptive geometry**
Week 7	**True dip from strike and apparent dip**
Week 8	**True dip from two apparent dip**
Week 9	**Determination of strike and true dip from three points**
Week 10	**Determination the thickness and depth of strata**
Week 11	**Line of intersection**
Week 12	**Vertical fault**
Week 13	**Inclined fault**
Week 14	**Determination the stress on the fault**
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
References	**Text**	**Available in the Library?**
Required Texts	**Structural geology for Marland P. Billings**	**Yes**
Recommended Texts		
Websites		

Module Information معلومات المادة الدراسية			
Module Title	**Remote Sensing**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO2415**		
ECTS Credits	**5.00**		
SWL (hr/sem)	**125**		
Module Level	**UGII**	**Semester of Delivery**	**Four**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Muaid jassim Rasheed**	**e-mail**	**muayid.j@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Ass. prof.**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**Zainab Damad Hassan**	**e-mail**	**zainab.hassan@sc.uobaghdad.edu.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**GEO-2311**	**Semester**	**Three**
Co-requisites module	**GEO-3512**	**Semester**	**Five**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	• **This module aims to review fundamentals of Remote Sensing &Arial survey.** • **The purpose of this module is to prepare students for the development and** • **Analysis of remote sensing data sets, which are essential to Geomorpholog, Hydrology ,Environment and many branches of Geology.**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	• **When applying and using remote sensing science in geology, we can** • **understand the topographic and geomorphological reality of vegetation and** • **land cover, patterns of water drainage, rivers and soils, pollution in the air, water and soil, the nature of minerals and rocks, and many outcomes of the** • **great development that has occurred in this field, which saves effort and** • **money in a very short time.**
Indicative Contents **المحتويات الارشادية**	• **Guiding students on the importance of remote sensing as an applied science and an important tool for many branches of geology.**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• **It depends on reviewing lectures as well as understanding and skill in using remote sensing programs, and here is the ERDAS program**

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	**80**	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	**5**
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	**45**	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	**3**
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**125**		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction in photography
Week 2	Kind of photography
Week 3	Scales of photography
Week 4	Introduction to fundamentals (R.S.)
Week 5	The electromagnetic spectrum
Week 6	Electromagnetic Radiation
Week 7	Interactions with the atmosphere
Week 8	Midterm Exam
Week 9	Radiation
Week 10	Characteristics of images
Week 11	Satellites characteristics
Week 12	Sensors
Week 13	Resolution

Week 14	**Image processing & Image classification**
Week 15	**Preparatory Week**

Delivery Plan (Weekly Lab. Syllabus) **المنهاج الاسبوعي للمختبر**	
Week	**Material Covered**
Week 1	**Introduction to aerial image , History and Important.**
Week 2	**Definition of the aerial image, its components, types, the difference between the vertical and the oblique image, the scale of the image.**
Week 3	**Definition of the satellite image, its components, specifications, definition of the regions of the electromagnetic spectrum. Introduction to the erdas program.**
Week 4	**Image information. Profile, pixel data, histogram.**
Week 5	**How to subset an image of a regular and irregular area.**
Week 6	**Enhancement.**
Week 7	**Layer stack**
Week 8	**Midterm Exam**
Week 9	**Mosaic**
Week 10	**Unsupervised classification**
Week 11	**Supervised classification**
Week 12	**Geometric correction of the image**
Week 13	**Normalized difference vegetation and water index**
Week 14	**How to change the overlay of channels, how to combine a multispectral image such as Landsat 30m with an image with high spatial resolution such as SPOT.**
Week 15	**Preparatory Week**

Learning and Teaching Resources **مصادر التعلم والتدريس**		
References	**Text**	**Available in the Library?**
Required Texts	• **Fundamentals of Remote Sensing. Natural** • **Recourse's Canada .Canada center for remote sensing.**	**Yes**
Recommended Texts	**Remote Sensing Geology by Ravi P.Gupta**	**Yes**
Websites	**Accessing scientifically websites from Wikipedia or universities (lectures and videos).**	

Module Information معلومات المادة الدراسية			
Module Title	**Sedimentology**	**Module Delivery**	
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**GEO2416**		
ECTS Credits	**4.00**		
SWL (hr/sem)	**100**		
Module Level	**UGII**	**Semester of Delivery**	**Four**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Hasan Kattoof Jasim**	**e-mail**	**Hasan.jasim@sc.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor	**Maysoon Omer Ali Hiba Sadoon Mohsen**	**e-mail**	**maysoon.ali@sc.uobaghdad.iq hiba.mimaar@sc.uobaghdd.edu.iq**
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**GEO-3521**	**Semester**	**Five**

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims **اهداف المادة الدراسية**	**١. Sedimentology aims to identify the types of loose sediments, how they are formed, the way they are transported, and the places and environments in which they deposition.** **٢. Introducing the importance of sedimentology, which is the link between earth science and all natural, medical and engineering sciences, agricultural and pure sciences**
Module Learning Outcomes **مخرجات التعلم للمادة الدراسية**	**١. Training in identifying and diagnosing the types of sediments of sediment, chemical and organic** **٢. Training on the skills of dealing with different types of sediment and mastering how to study its physical and chemical properties** **٣. Mastering the most important applications needed by all engineering scientific disciplines and pure sciences that deal with sediment of all kinds and its industrial and engineering applications.**
Indicative Contents **المحتويات الارشادية**	**١. Identifying the types of sediments, which are clearly seen during field work and reconnaissance field trips.**

	٢. Sedimentology are among the most important branches of earth science and have important applications in many engineering and scientific fields ٣. Iraq has a huge amount of sediments, so students must understand and understand how to deal with sediments, the way to deal with them in geological workshops and in the field , how to make slides for these sediments and rocks, and how to study them under a polarizing microscope

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	١. Training on the skills of collecting samples for sediment from the field and how to deal with them in the laboratory and geological workshop . ٢. Mastering the process of preparing samples for the various types of analyses that can be conducted on sediment and sedimentary rocks. ٣. Thinking about the applications that can be made on sediments, which are considered one of the most important requirements of most applied research. ٤. Sediments have many applications, in addition to their engineering and industrial importance, as there are many of them that are considered precious stones, as well as being the basic component of many geological museums and what is known as geological parks and geoparks.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**80**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**5**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**20**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**1**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**100**		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	Introduction to Sedimentology – How are sediment formed, classification of sediment
Week 2	Field Technique , collection of samples , sample description,
Week 3	Types of sediment , clastic, chemical , organic and their main sedimentological properties, weathering and erosion
Week 4	Sedimentary Environments, Continental, transitional, marine , sedimentological properties of sedimentary environments, Energy,

Week 5	**The physical processes of sediments, especially the methods of transport and sedimentation, Reynolds number, types of loads loads,**
Week 6	**Texture of Sediments, Grain size , grain shape (roundness and sphericity), sorting , packing)**
Week 7	**Grain size scale, units of measurement (mm and phi units). Main Technique of Grain Size measurement (Vierner, settling velocity, sieving**
Week 8	**Mid Theoretical Examination**
Week 9	**Shape of Sediments: roundness, sphericity, Projection and visual techniques**
Week 10	**Stability and Maturity of Sediments, maturity index**
Week 11	**Dust Storms, factors and model of dust storms formation**
Week 12	**Main Technique of Mineral Separation, froth flotation, heavy liquids, magnetic techniques**
Week 13	**Sedimentary Structures, classification, groups, Iraqi examples**
Week 14	**Application of Sedimentology, industrials and economic applications**
Week 15	**Final Theoretical Examination**
Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	**Lab 1: Introduction, Classification and Types of Sediments**
Week 2	**Lab2: Presentation of Sedimentological Data**
Week 3	**Lab 3: Grain Size of Mixture of sediments**
Week 4	**Lab 4: Grain Size Analysis of gravels**
Week 5	**Lab 5: Grain Size Analysis of Sand by Sieving**
Week 6	**Lab 6: Grain Size analysis of sand from thin section**
Week 7	**Lab 7: Grain Size Analysis of Mud Fraction by Pipette Analysis**
Week 8	**Lab 8: Mid Examination of Sedimentology**
Week 9	**Lab 9: Shape analysis of Gravels**
Week 10	**Lab 10: Shape Analysis of Sand from Thin Section**
Week 11	**Lab 11: Heavy Mineral Analysis**
Week 12	**Lab 12: Paleocurrent Analysis**
Week 13	**Lab 13: Sedimentological Section and Facies Analysis**
Week 14	**Lab 14: Clay Mineralogy**
Week 15	**Lab 15: Final Practical Examination of Sedimentary Rocks**
Learning and Teaching Resources مصادر التعلم والتدريس	

References	Text	Available in the Library?
Required Texts	Folk, R., 1974, Petrology of Sedimentary Rocks. Hamphill, Texas, 182P.	Yes
Recommended Texts	Selley, R. C., 2000, Applied sedimentology, Academic Press, 521P.	Yes
Websites	https://www.cliffsnotes.com/study-guides/geology/sedimentary-rocks/clastic-sedimentary-rocks	

إحصاء ـ المرحلة الثانية / الفصل الثاني

Module Information معلومات المادة الدراسية			
Module Title	Statistic	Module Delivery	
Module Type	Basic	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	GEO2417		
ECTS Credits	4.00		
SWL (hr/sem)	100		
Module Level	UGII	Semester of Delivery	Four
Administering Department	Geology Dept.	College	College of Science
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name	Dr. Aiad Ali Hussein	e-mail	aiad.hussien@sc.uobaghdad.edu.iq
Scientific Committee Approval Date	01/09/2024	Version Number	2.0

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims اهداف المادة الدراسية	١. To provide students with a solid foundation in Calculus at degree level and equip them with a knowledge of the necessary methods and techniques in applied mathematics for further study. ٢. It deals with the basic concept of functions limit, continuity, derivation and their consequences. ٣. To develop problem solving skills and understanding of differentiation rules through the application.
Module Learning	١. Students will become familiar with functions and limits. They will gain an

Outcomes **مخرجات التعلم للمادة الدراسية**	**understanding of convergence of sequences and series, and understanding of the foundations of differentiation and integration.** **٢. Students will be able to compute limits of sequences and series, find derivatives, integrate elementary functions.** **٣. Students will have enhanced skills in the following areas: modelling, spatial awareness, abstract reasoning and numeracy.**
Indicative Contents **المحتويات الارشادية**	• **The course will supply the students with basic concepts of differentiation (chain, product, quotient). Derivatives of standard functions (powers, polynomials, trigonometric). The exponential function: and logarithm as inverse. Derivatives of inverse functions via chain rule, local extrema and curve sketching.**

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• **The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.**

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**33**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**2**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**67**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**4**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**100**		

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	**Basic concepts: sets, lines, circles and functions.**
Week 2	**Domain, range and inverse of functions.**
Week 3	**Derivative: motivation, informal definition of limit**

Week 4	**Limits properties**
Week 5	**Continuity**
Week 6	**Trigonometric functions, their target and continuity**
Week 7	**Derivative rules of elementary functions**
Week 8	**Midterm Exam**
Week 9	**Derivatives of trigonometric and inverse trigonometric functions**
Week 10	**Applications of derivative; maximum and minimum**
Week 11	**Mean value theorem with applications**
Week 12	**Roll's theorem with applications**
Week 13	**Introduction to L'Hospital's rule**
Week 14	**Graph sketching**
Week 15	**Preparatory Week**

Learning and Teaching Resources
مصادر التعلم والتدريس

References	**Text**	**Available in the Library?**
Required Texts	**Thomas Calculus, Joel R. Hass, Maurice D. Weir, 15th edition (2022).**	**Yes**
Recommended Texts	**Differential calculus and their applications, M. Barun, 3rd edition, Applied mathematical sciences.**	**No**
Websites	**https://www.sciencebooksonline.info/mathematics.html**	

Module Information معلومات المادة الدراسية			
Module Title	**Statistic**	**Module Delivery**	
Module Type	**Supportive**	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**UOB205**		
ECTS Credits	**2.00**		
SWL (hr/sem)	**50**		
Module Level	**UGII**	**Semester of Delivery**	**Four**
Administering Department	**Geology Dept.**	**College**	**College of Science**
Module Leader	**Dr. Leqaa faleh owdaa**	**e-mail**	**leqaa.falih@ircoedu.uobaghdad.edu.iq**
Module Leader's Acad. Title	**Lecturer**	**Module Leader's Qualification**	**Ph.D.**
Module Tutor		**e-mail**	
Peer Reviewer Name	**Dr. Aiad Ali Hussein**	**e-mail**	**aiad.hussien@sc.uobaghdad.edu.iq**
Scientific Committee Approval Date	**01/09/2024**	**Version Number**	**2.0**

Relation with other Modules العلاقة مع المواد الدراسية الاخرى			
Prerequisite module	**None**	**Semester**	
Co-requisites module	**None**	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents اهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims اهداف المادة الدراسية	١. تهدف إلى تنمية روح الإعتزاز باللغة العربيَّة للمحافظة على الهوية العربيَّة. ٢. تهدف إلى تأهيل الطلبة بالمعارف والمخرجات الخاصة علم النحو، والصرف، والإملاء؛ لتمكنه من الكتابة الصحيحة والتعبير السليم وتقويم لسانه. ٣. تهدف إلى تنمية ذوق الطالب الأدبي وإثراء تحصيله وإغناء زاده من الفكر العربي والإسلامي. ٤. تهدف إلى تطوير مهارات الطلاب اللغويَّة التي تؤهلهم للإبداع المتميز. ٥. تهدف إلى تنمية مهارات التحدث بـ (اللغة العربيَّة). ٦. تهدف إلى الارتقاء بمستوى الطلبة من الجانب المهني والبحثي.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	١. التعرف على الظواهر اللغويَّة كونها إحدى خصائص اللغة العربيَّة التي تميزت بها. ٢. التعرف على قواعد كتابة الألف اللينة في آخر الكلمة، والتمييز بين الألف الطويلة والقصيرة عن طريق ذكر مواضع كل منهما وتوضيح ذلك بذكر الأمثلة. ٣. التعرف على الإستثناء من حيث تعريفه وأدواته وحكمه وبيان ذلك بالأمثلة التوضيحية. ٤. التعرف على الحال من حيث تعريفه وحكمه وبيان ذلك بالأمثلة التوضيحية. ٥. التعرف على التمييز من حيث تعريفه وحكمه وبيان ذلك بالأمثلة التوضيحية. ٦. التعرف على المفاعيل الخمسة وبيان أحكامها بكونها من منصوبات الأسماء وبيان ذلك بالأمثلة التوضيحية. ٧. التعرف على حروف الجر بكونها من مجرورات الأسماء، والتمييز بين معانيها، وبيان حكمها مع توضيح ذلك بذكر الأمثلة. ٨. التعرف على الاسم المذكر والاسم المؤنث من حيث تعريفهما، وأقسامهما مع ذكر الأمثلة التوضيحية. ٩. التمييز بين اللام الشمسية واللام القمرية من حيث النطق والكتابة، وذلك من حيث تعريفهما ومعرفة حروف

	كل منهما. ١٠. التعريف بحروف الحذف والزيادة في الكلمة، وبيان ذلك بالأمثلة التوضيحية . ١١. تعريف الطالب بمواضع الوقف في اللغة العربيَّة لما فيه من أهمية لإصال المعلومات إلى المتلقي بشكل صحيح فضلاً عن تمكنه من فهم النص فهماً صحيحاً . ١٢. تمكين الطالب من معرفة المواضع الإعرابية للكلمات داخل النص، ومعرفة معاني بعض الكلمات ، فضلاً عن استخراج الأهداف منه. ١٣. التعرف على الشاعر المتنبي بكونه من شعراء العصر العباسي. ١٤. التعرف على الشاعرة نازك الملائكة بكونها إحدى رواد الشعر الحر الحديث في العراق.
Indicative Contents **المحتويات الارشادية**	• الظواهر اللغوية: التَّرادف ، المشترك اللفظي، التَّضاد. • الألف اللينة: الألف الطويلة، الألف القصيرة. • الإستثناء. • الحال. • التمييز. • المفاعيل الخمسة: منصوبات الأسماء ، المفعول به، المفعول فيه، المفعول المطلق، المفعول لأجله، المفعول معه. • حروف الجر: مجرورات الأسماء، معاني حروف الجر. • الاسم المذكر والمؤنث: تعريف الاسم المذكر، والاسم المؤنث، أقسام الاسم المذكر والمؤنث. • اللام الشمسية، اللام القمرية، الحذف والزيادة. • الوقف. • سورة لقمان، إعراب سورة لقمان ، تفسير سورة لقمان. • الشاعر المتنبي: حياته، مؤلفاته. • الشاعرة نازك الملائكة : حياتها، مؤلفاتها.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• الاستراتيجية الرئيسية التي سيتم تبنيها في تقديم هذه الوحدة هي تشجيع الطلاب على المشاركة في التمارين والتطبيقات النحوية والإملائية، مع تحسين مهارات التفكير والتحليل في الوقت نفسه. ويتم تحقيق ذلك عن طريق الفصول والبرامج التعليمية التفاعلية والنظر في أنواع التطبيقات التي تتضمن بعض الأنشطة التي تهم الطلبة.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) **الحمل الدراسي المنتظم للطالب خلال الفصل**	**33**	**Structured SWL (h/w)** **الحمل الدراسي المنتظم للطالب أسبوعيا**	**2**
Unstructured SWL (h/sem) **الحمل الدراسي غير المنتظم للطالب خلال الفصل**	**17**	**Unstructured SWL (h/w)** **الحمل الدراسي غير المنتظم للطالب أسبوعيا**	**1**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**50**		

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	**الظواهر اللغويَّة: الترادف ، المشترك اللفظي، التضاد.**
Week 2	**قواعد كتابة الألف اللينة في آخر الكلمة.**
Week 3	**الإستثناء.**
Week 4	**الحال.**
Week 5	**التمييز.**
Week 6	**المفاعيل الخمسة: المفعول به، المفعول فيه، المفعول المطلق، المفعول لأجله، المفعول معه.**
Week 7	**حروف الجر ومعانيها.**
Week 8	**امتحان نصف الفصل**
Week 9	**الاسم المذكر والمؤنث.**
Week 10	**الحروف من حيث النطق والكتابة: اللام الشمسية والقمرية، الحذف والزيادة.**
Week 11	**الوقف.**
Week 12	**نص من سورة لقمان.**
Week 13	**الشاعر المتنبي.**
Week 14	**الشاعرة نازك الملائكة.**
Week 15	**اسبوع تحضيري**

Learning and Teaching Resources مصادر التعلم والتدريس		
References	**Text**	**Available in the Library?**
Required Texts	**القرآن الكريم** **- الأدب العربي في العصر العباسي: د. ناظم رشيد.** **- إعراب القرآن وبيانه: محيي الدين درويش.** **- التطبيق الصرفي: د. عبده الراجحي.** **- تفسير الكشاف: للزمخشري.** **- جامع الدروس العربيَّة: الشيخ مصطفى الغلاييني.** **- ديوان المتنبي.** **- ديوان نازك الملائكة.** **- شرح ابن عقيل: ابن عقيل، تحقيق: محمد محي الدين عبد الحميد.** **- الشعر العراقي الحديث مرحلة وتطور: د. جلال الخياط** **- فقه اللغة العربيَّة وخصائصها: د. إميل بديع يعقوب.** **- المفيد في أحكام التلاوة والتجويد: القارئ الشيخ رافع العامري.** **- الوجيز في اللغة العربيَّة: أ.د. محيي هلال السرحان.**	**Yes**
Recommended Texts	**Electromagnetic theory (book). 2000.vol.1**	**No**
Websites		