جامعة حلوان
كلية العلوم
قسم الكيمياء

مرحلة الدراسات العليا

(عام 2016 /2017)

برنامج ماجستير الكيمياء الحيوية

منسق البرنامج : د. رانيا الليثى
رئيس القسم: ا.د. وفاء شوشه

نموذج رقم (١٣)

جامعة:.....حلوان.
كلية:.....العلوم.
قسم:.....الكيمياء.

توصيف برنامج دراسي

أ ـ معلومات أساسية:

١- إسم البرنامج: **Master degree in Biochemistry**

٢ ـ طبيعة البرنامج: (أحادى)

القسم المسئول عن البرنامج: الكيمياء

تاريخ إقرار البرنامج: **11/6/2009 قرار وزارى رقم ١٢٣٤**

تاريخ تعديل البرنامج: **٢٠١٠/٤/١٩ قرار وزارى رقم ٧٢٠**

تاريخ اعتماد توصيف البرنامج: **مجلس قسم الكيمياء رقم (٤) بتاريخ ٢٠١٧/١٢/١٣**

و مجلس كلية رقم (٤٤٠) بتاريخ ٢٠١٧/١٢/١٨

ب- معلومات متخصصة:

١- الأهداف العامة للبرنامج :

The Master of science degree in biochemistry is aimed to:

1. Provide students with the knowledge and skills necessary to conduct biochemistry research in the related fields.
2. develop research capacity and scientific thinking and development in the field of biochemistry from the reality of research plan for the faculty.
3. use the methods and new technologies by studying a number of academic courses and the performance of applied and academic research through integrated scientific thesis.
4. Provide graduates with the ethics of scientific research and the basics of quality in the study of non organic chemistry.
5. Encourage graduates to think creatively and self-reliance in solving complex problems in an orderly fashion and independence and the ability to develop himself professionally.
6. Develop presentational skills of the graduate and developing ability to write professional reports.

٢- المخرجات التعليمية المستهدفة من البرنامج:

١/٢ المعرفة والفهم:

By the end of the master's programme the graduate is expected to:

a1. Identify fundamentals of biochemistry underlying biochemical reactions, techniques, applied biochemistry and bioinformatics, which will be a particular importance to the pharmaceutical industry, biotechnology and medical analysis.

a2. Relate the latest findings of scientific research in the field of biochemistry.

a3. Illustrate the basics of scientific research in terms of commitment to implement the research methodology and procedures in the manner that protects invention researcher and commitment to the ethics of scientific research.

a4. Show the importance of quality performance in professional practice such as time management and available recruitment resources to solving problem and independence, as well as the interpretation and critical awareness of the quality of evidence.

a5. State the importance of application of knowledge in professional practice in the field of biochemistry in terms of experimental design, critical evaluation of the results, conclusions, and develop the skills to analyze and display data for achieve comprehensive quality.

a6. Outline principles of the professional ethics in the field of biochemistry and the laws that govern and organize.

a7. Choose the quality of papers accepted in the scientific community, which linked with the problems of society and the environment.

٢/٢ القدرات الذهنية:

By the end of the master's programme the graduate is expected to:

b1. Analyze problems and evaluate the information in the field of biochemistry to resolve them.

b2. Test assumptions using the appropriate experimental design and statistical analysis of the data to solve problems.

b3. Assume the linking between knowledge of bioinformatics, biotechnology and applied biochemistry, and help solve problems in the professional field of biochemistry.

b4. Plan original management research program addresses the problem of research related to pharmaceutical or medical tests or a problem for society.

b5. Assess risk which may be exposed during the professional practice through dealing with biological material, such as infection of certain diseases or exposure to dangerous chemicals which are highly toxic or radioactive.

b6. Survey scientific planning for the development of performance professional which can access to the highest quality.

b7. Develop of intellectual awareness about the escalating problems at the interface between areas of biology, chemistry, medicine and physics.

٣/٢ المهارات:

١/٣/٢ - مهارات مهنية وعلمية:

By the end of the master's programme the graduate is expected to:

c1. Apply the basic professional skills for the practice of scientific research in the field of biochemistry which plays a key role in technological development.

c2. Estimate the continuation, through observation, measurement, events or changes and registration that scientific data in the form of a report, and evaluation.

c3. Decide laboratory standard methods in the field of biochemistry and performance critical review for them.

c4. Design a proposal research for mien grant funding the appropriate research.

c5. Originate self-direction and originality in tackling and solving problems, and work independently in planning and implementing tasks at the professional level or equivalent.

٢/٣/٢- مهارات عامة:

By the end of the master's programme the graduate should have the ability to:

d1- Communicate effectively and clearly through talks, publications written and visual (view poster).

d2- Use of bioinformatics and molecular modeling software to serve the professional practice.

d3 – Develop self- assessment and continuous learning.

d4-Integrate information from a various sources, including libraries and databases and the internet.

d5- Develop criteria and indicators for assessing the performance of others and the ability to design questionnaires.

d6- Manage time efficiently.

d7- Work independently or as part of the team and team leader in the distribution of work and the preparation of research.

d8- Self- learning independently with open-mindedness and monetary question construction.

d9- manage of resources efficiently.

٣- المعايير الأكاديمية للبرنامج:

تم تبنى المعايير العامة الاسترشادية التى اعتمدتها الهيئة القوميه لضمان جودة التعليم و الاعتماد (ARS) فى ٢٠٠٩

حيث تم صياغة معايير اكاديمية قياسية من هذه المعايير و هى:

Academic Reference Standards (ARS) for Master Program of Biochemistry:

1 - The Attributes of a typical Graduate:

Graduate master's program in biochemistry should be able to:

1- Mastering the basics and methodologies of scientific research and use different tools.
2- Apply the analytical method and its use in the biochemistry field of specialization.
3- Apply specialized knowledge and integrate it with the knowledge related to the professional practice.
4 - Show awareness of the ongoing problems and the late visions in the area of specialization.
5 - Identify professional problems and find solutions.
6- Mastering the scope of appropriate professional skills and use appropriate technological means to serve the professional practice.
7- Communicate effectively and the ability to lead teams.
8- Decision-making in various professional contexts.
9- Use available resources to bring the greatest benefit and preserve it.
10- Show awareness of his role in the development of society and preserve the environment in the light of global and regional changes.
11- Behave in a manner that reflects integrity, credibility and commitment to the rules of the profession.
12- Self-development academically and professionally and capable of continuous learning.

2- General Standards:

2-1 Knowledge and Understanding

By the end of studying master's biochemistry program graduates must be able to grasp:
1- Theories and fundamentals related to biochemistry field of learning as well as in related areas.
2- Reciprocal influence between professional practice and its impacts on the environment.
3- Scientific developments in biochemistry field of specialization.
4- Legal and ethical principles of professional practice in the biochemistry field.
5- The principles and basics of quality in professional practice in the field of specialization.
6 - Basics and ethics of scientific research.

2-2 Intellectual Skills

By the end of studying Master's biochemistry program graduates should be able to:
1- Analyze and evaluate information in the field of specialization and analogies to solve problems.
2– Solve specialized problems with the non-availability of some data.
3- Link knowledge to solve various professional problems.
4- Conduct a research study and / or writing a scientific methodological study on a research problem.
5- Risk assessment in professional practices in the field of specialization.
6- Planning to improve performance in the biochemistry field of specialization.
7 - Make career decisions in various professional contexts.

2.3 Professional Skills

By the end of studying master's biochemistry program graduates must be able to:

1- Master the basic and modern professional skills in the area of specialization.
2- Write and evaluate professional reports.
3 - Evaluate methods and tools existing in the area of specialization.

2.4 general skills and transferable

By the end of studying biochemistry Master's program graduates should be able to:

1- Effective communication of all kinds.
2- Use information technology to serve the professional practice.
3- Self-assessment and identify personal learning needs.
4- Use different sources to obtain information and knowledge.
5- Develop rules and indicators for assessing the performance of others.
6- Work in teams and lead teams in various professional contexts.
7- Time management efficiency.
8- Self-learning and ongoing.

٤ـ العلامات المرجعية:

4- Benchmarks:

Not applicable.

٥ـ هيكل ومكونات البرنامج:

Curriculum structure and contents

.a- Programme duration:

Full-time: Minimum : 4 essential semester

Maximum: 10 essential semester

.b- Programme structure

Total: 36 credit hours (18 credit hours compulsory, 6 credit hours elective, 12 credit hours thesis).

أـ **مدة البرنامج:** عام دراسي كامل طبقا للائحة الدراسات العليا.

ب- **هيكل البرنامج:**

ت- **عددالساعات/ عددالوحدات :** نظرى 24 رسالة بحثية 12 إجمالي 36

☐ عدد المقررات الأساسية: 6 75 %

☐ عدد المقررات الاختيارية: 2 25 %

ث- التدريب الميداني: لا يوجد .

خ- **مستويات البرنامج (فى نظام الساعات المعتمدة)**:

المستوي الأول/ السنة الأولي: يلزم اجتياز ٢٤ وحدة موزعة كالتالي:

الترم الأول: ٩ وحدات الزامي و ٣ وحدات اختياري

الترم الثاني: ٩ وحدات الزامي و ٣ وحدات اختياري

المستوي الثاني: رسالة بحثية (١٢ وحدة)

د.مقررات البرنامج:

أ- إلزمي:

الفصل الدراسي	الفرقة والمستوى	عدد الساعات الأسبوعية			عدد الوحدات	إسم المقرر	كود أو رقم المقرر
				نظري			
الاول	تمهيدى ماجيستير			٣	٣	Advanced Molecular biology & Genetic Engineering	143601 C
الاول	تمهيدى ماجيستير			٣	٣	Advances in Metabolism of Protein, Amino Acids & Nucleoproteins with special physiological correlation to metabolic disorders	143602C
الاول	تمهيدى ماجيستير			٣	٣	Advanced Cancer Biology & Tumor Markers	143603C
الثانى	تمهيدى ماجيستير			٣	٣	Advances in Separation Techniques and instrumental Analysis	143604C
الثانى	تمهيدى ماجيستير			٣	٣	Advances in Metabolism of	143605C

	carbohydrates & lipids with physiological correlation to metabolic disorders						
143606 C	Enzymes	٣	٣			تمهيدى ماجيستير	الثانى

ب- إختياري:

كود أو رقم المقرر	إسم المقرر	عدد الوحدات	عدد الساعات الأسبوعية			الفرقة والمستوى	الفصل الدراسي
			نظري				
143607 E	Vitamins & Inorganic Elements Metabolism	٣	٣			تمهيدى ماجيستير	الاول أو الثانى
143608 E	Advanced Immunology	٣	٣			تمهيدى ماجيستير	الاول أو الثانى
143609 E	Advanced Endocrinology	٣	٣			تمهيدى ماجيستير	الاول أو الثانى
143610 E	Advanced Biotechnology	٣	٣			تمهيدى ماجيستير	الاول أو الثانى
143611 E	Advanced Nutritional Biochemistry	٣	٣			تمهيدى ماجيستير	الاول أو الثانى
143612 E	Microbiology	٣	٣			تمهيدى ماجيستير	الاول أو الثانى
141670 E	Biostatistics	٣	٣			تمهيدى ماجيستير	الاول أو الثانى
142642 E	Biophysics	٣	٣			تمهيدى ماجيستير	الاول أو الثانى

٦- محتويات المقررات:

ينظر محتوى توصيف المقررات.

٧- متطلبات الإلتحاق بالبرنامج:

To be admitted to the Biochemistry Programme, the candidate must hold a Bachelor Degree in Science with at least Grade (Good) from any Egyptian Universities or any Equivalent and Recognized degree from the Supreme Council of Universities with at least Grade (Good) or Higher Learning Diploma Recognized from Supreme Council of Universities with at least Grade (Good).

٨- القواعد المنظمة لإستكمال البرنامج:

For the award of master of science, the students should:

1. Achieve a total minimum of 36 credit hours with minimum GPA of 2.0, including the completion of master dissertation.
2. Pass the level of language and computer course successfully in accordance with the rules prescribed by University Council.
3. Have at least one paper extracted from the thesis and accepted for publication in one of the reference periodicals.

Grading System:

The final overall marks determine the degree classification as follows:

Grade	Percentage	Points
A	95 – 100 %	4.00
A^-	90 - > 95 %	3.67
B^+	85 - > 90 %	3.33
B	80 - > 85 %	3.00
B^-	75 –> 80 %	2.67
C^+	70 – > 75 %	2.33
C	65 - > 70 %	2.00
C^-	60 - > 65 %	1.67
D^+	55 - > 60 %	1.33
D	50 - > 55 %	1.00
F	> 50 %	0.00

٩- طرق وقواعد تقييم الملتحقيين بالبرنامج:

	الطريقة	النسبه من الدرجات الكليه	ماتقيسة من المخرجات التعليمية المستهدفه
تمهيدى ماجستير	١- أعمال فصلية	٤٠%	المعرفه و الفهم – القدرات الذهنيه- المهارات المهنيه – المهارات العامه
	٢-امتحان تحريرى	٦٠%	المعرفه والفهم- القدرات الذهنيه.
الرسالة البحثية	عمل سيمينار قبل التسجيل	الموافقه على التسجيل لدرجة الماجستير	المعرفه و الفهم – القدرات الذهنيه- المهارات المهنيه – المهارات العامه
	تقرير سنوى من المشرفين على الرساله .	منح درجة الماجستير	
	عمل السيمينار قبل المناقشه.		
	٣-عرض الرساله و المناقشه امام لجنة الحكم و المناقشه.		

١٠- طرق تقويم البرنامج:

العينة	الوسيلة	القائم بالتقويم
٥٠ % فأكثر	استبيان	الخريجون
عدد ٢ فأكثر	مقابلات شخصية و استبيانات	أصحاب الأعمال
واحد مراجع كل ٤ سنوات	مراجعة البرنامج وكتابة تقارير	مقيم خارجى أو ممتحن خارج
عدد ٢ سنويا	مقابلات شخصية	المتخصصين الأكاديميين

منسق البرنامج: د/ رانيا الليثى عبد الحميد **التوقيع:** **التاريخ**

مصفوفات برنامج ماجستير الكيمياء الحيوية

بمرحلة الدراسات العليا

نموذج رقم (١١ب)

جامعة: حلوان.
كلية : العلوم.
قسم : الكيمياء.

مسمى البرنامج	Master degree in Biochemistry

(I) مصفوفة المعارف والمهارات المستهدفة فى مقابل المعاييرالأكاديمية القياسية

	المعارف							مهارات ذهنية							مهارات مهنية					مهارات عامة								
ARS for Master Program of Biochemistry By the end of studying master's biochemistry program graduates must be able to:	a1. Fundamentals of biochemistry underlying biochemical reactions and techniques used to achieve them and applied Biochemistry and bioinformatics, which will be a particular importance to the pharmaceutical industry, biotechnology and medical analysis.	a2. Continuous and standing on the latest findings of scientific research in the field of biochemistry.	a3. The basics of scientific research in terms of commitment to implement the research methodology and procedures in the manner that protects invention researcher and commitment to the ethics of scientific research.	a4. The importance of quality performance in professional practice such as time management and available recruitment resources to solving problem and independence, as well as the interpretation and critical awareness of the quality of evidence.	a5. State the importance of application of knowledge in professional practice in the field of biochemistry in terms of experimental design, critical evaluation of the results, conclusions, and develop the skills to analyze and display data for achieve comprehensive quality.	a6. Principles of the professional ethics in the field of biochemistry and the laws that govern and organize.	a7. Choose the quality of papers accepted in the scientific community, which linked with the problems of society and the environment.	b1. Analyze problems and evaluate the information in the field of biochemistry and work to resolve them.	b2. Solution the formulation and testing of assumptions using the appropriate experimental design and statistical analysis of the data to solve problems	b3. The linking between Knowledge of Bioinformatics, Biotechnology and Applied Biochemistry, and help solve problems in the professional field of biochemistry.	b4 Planning and writing, and original management research program addresses the problem of research related to pharmaceutical or medical tests or a problem for society.	b5 Risk assessment, which may be exposed during the professional practice through dealing with biological material, such as infection of certain diseases or exposure to dangerous chemicals which are highly toxic or radioactive.	b6. Communication and permanent scientific planning for the development of performance professional which can access to the highest quality.	b7. Development of intellectual awareness about the escalating problems at the interface between areas of biology, chemistry, medicine and physics.	c1 Mastering of the basic professional skills for the practice of scientific research in the field of biochemistry which plays a key role in technological development.	c2 The continuation, through observation and measurement, and events or changes and registration that scientific data in the form of a report, and evaluation.	c3 Performance laboratory standard methods in the field of biochemistry and performance critical review for them.	c4 Prepare a proposal research for mien grant funding the appropriate research.	c5 Demonstrate self-direction and originality in tackling and solving problems, and work independently in planning and implementing tasks at the professional level or equivalent.	d1. Communicate effectively and clearly through talks, publications written and visual (view poster).	d2 Use of bioinformatics and molecular modeling software to serve the professional practice.	d3 Effective learn and knowledge of study skills are necessary for continued professional development.	d4 Integrate and evaluate information from a various sources, including libraries and databases and the Internet.	d5 Develop criteria and indicators for assessing the performance of others and the ability to design questionnaires.	d6. Time Management efficiently.	d7. Work independently or as part of the team and team leader in the distribution of work and the preparation of research.	d8. Self- learning independently with open-mindedness and monetary question construction.	d9. Efficient management of resources.

Knowledge and Understanding	Theories and fundamentals related to biochemistry field of learning as well as in related areas.	x																										
	Reciprocal influence between professional practice and its impacts on the environment.							x																				
	Scientific developments in biochemistry field of specialization.		x	x																								
	Legal and ethical principles of			x			x																					

	professional practice in the biochemistry field.																											
	The principles and basics of quality in professional practice in the field of specialization.				x	x																						
	Basics and ethics of scientific research.			x			x																					
Intellectual Skills	Analyze and evaluate information in the field of specialization and analogies to solve problems.								x	x																		

	Solve specialized problems with the non-availability of some data.									x																		
	Link knowledge to solve various professiona l problems.										x																	
	Conduct a research study and / or writing a scientific methodolog ical study on a research problem.											x																
	Risk assessment in professiona l practices in the field of												x															

	specialization.																										
	Planning to improve performance in the biochemistry field of specialization.													x													
	Make career decisions in various professional contexts.														x												
Professional Skills	Master the basic and modern professional skills in the area of specialization.															x											
	Write and evaluate professional reports.																x		x	x							

	Evaluate methods and tools existing in the area of specializatio n.																	x		x								
General and Transferable Skills	Effective communica tion of all kinds.																				x							
	Use information technology to serve the professiona l practice																					x						x
	Self-assessment and identify personal learning needs.																						x					
	Use different sources to obtain information and																							x				

	knowledge.																												
	Develop rules and indicators for assessing the performance of others.																								x				
	Work in teams and lead teams in various professional contexts.																										x		
	Time management efficiency.																									x			
	Self-learning and ongoing.																											x	

منسق البرنامج:

د. رانيا الليثى

رئيس مجلس القسم العلمى:

ا.د/ وفاء غنيم شوشة

نموذج رقم (١١ب)

جامعة: حلوان.
كلية : العلوم.
قسم : الكيمياء.

مسمى البرنامج	Master degree in Biochemistry

نموذج رقم (١١ب)) مصفوقة المعارف و المهارات المستهدفة من برنامج الماجستير في الكيمياء الحيوية فى مقابل المقررات الدراسية

المقررات الدراسية	المعارف							مهارات ذهنية							مهارات مهنية					مهارات عامة									كود المقرر
	a1. Fundamentals of biochemistry underlying biochemical reactions and techniques used to achieve them and applied Biochemistry and bioinformatics, which will be a particular importance to the pharmaceutical industry, biotechnology and medical analysis.	a2. Continuous and standing on the latest findings of scientific research in the field of biochemistry.	a3. The basics of scientific research in terms of commitment to implement the research methodology and procedures in the manner that protects invention researcher and commitment to the ethics of scientific research.	a4. The importance of quality performance in professional practice such as time management and available recruitment resources to solving problem and independence, as well as the interpretation and critical awareness of the quality of evidence.	a5. Realize the importance of application of knowledge in professional practice in the field of Biochemistry in terms of experimental design, critical evaluation of the results and conclusions, and develop the skills to use to analyze and display data for achieve comprehensive quality.	a6. Principles of the professional ethics in the field of biochemistry and the laws that govern and organize.	a7. Choose the quality of papers accepted in the scientific community, which linked with the problems of society and the environment.	b1 Analyze problems and evaluate the information in the field of biochemistry and work to resolve them.	b2. Solution the formulation and testing of assumptions using the appropriate experimental design and statistical analysis of the data to solve problems.	b3. The linking between Knowledge of Bioinformatics, Biotechnology and Applied Biochemistry, and help solve problems in the professional field of biochemistry.	b4 Planning and writing, and original management research program addresses the problem of research related to pharmaceutical or medical tests or a problem for society.	b5 Risk assessment, which may be exposed during the professional practice through dealing with biological material, such as infection of certain diseases or exposure to dangerous chemicals which are highly toxic or radioactive.	b6. Communication and permanent scientific planning for the development of performance professional which can access to the highest quality.	b7. Development of intellectual awareness about the escalating problems at the interface between areas of biology, chemistry, medicine and physics.	c1 Mastering of the basic professional skills for the practice of scientific research in the field of biochemistry which plays a key role in technological development.	c2 The continuation, through observation and measurement, and events or changes and registration that scientific data in the form of a report, and evaluation.	c3 Performance laboratory standard methods in the field of biochemistry and performance critical review for them.	c4 Prepare a proposal research for mien grant funding the appropriate research.	c5 Demonstrate self-direction and originality in tackling and solving problems, and work independently in planning and implementing tasks at the professional level or equivalent.	d1 Communicate effectively and clearly through talks, publications written and visual (view poster).	d2 Use of bioinformatics and molecular modeling software to serve the professional practice.	d3 Effective learn and knowledge of study skills are necessary for continued professional development.	d4 Integrate and evaluate information from a various sources, including libraries and databases and the Internet.	d5 Develop criteria and indicators for assessing the performance of others and the ability to design questionnaires.	d6. Time Management efficiently.	d7. Work independently or as part of the team and team leader in the distribution of work and the preparation of research.	d8. Self- learning independently with open-mindedness and monetary question construction.	d9. Efficient management of resources.	
Advanced Molecular biology & Genetic Engineering	√	√		√				√	√						√		√		√	√	√		√	√		√			١٤٣٦٠١

١٤٣٦٠٢	Advances in Metabolism of Protein, Amino Acids & Nucleic Acids	√	√		√	√			√	√		√			√		√	√				√		√	√	√			√
١٤٣٦٠٣	Cancer Biology & Tumor Markers	√	√	√					√	√	√	√			√	√	√	√					√	√		√		√	√
١٤٣٦٠٤	Advances in Separation Techniques and instrumental Analysis	√	√	√	√				√	√	√	√	√			√	√	√	√		√	√	√			√		√	
١٤٣٦٠٥	Advances in Metabolism of carbohydrates & lipids	√	√	√	√	√			√	√	√	√	√	√	√	√	√	√			√	√		√		√			
١٤٣٦٠٦	Enzymes	√	√	√	√	√	√		√	√	√			√		√	√	√			√	√				√	√	√	
١٤٣٦٠٧	Vitamins & Inorganic Elements Metabolism	√			√	√			√	√		√	√			√		√	√		√		√	√		√	√	√	√
١٤٣٦٠٨	Advanced	√	√		√				√	√	√	√	√			√	√	√	√	√	√			√	√	√			

	Immunology																											
١٤٣٦٠٩	Advanced Endocrinology	√	√		√	√	√		√			√				√	√	√	√	√	√	√	√	√	√	√	√	
١٤٣٦١٠	Advanced Biotechnology	√	√		√	√			√	√	√	√	√	√		√	√	√	√		√	√	√	√	√	√	√	
١٤٣٦١١	Advanced Nutritional Biochemistry	√	√	√						√		√		√	√			√			√		√		√		√	
١٤٣٦١٢	Microbiology	√	√	√	√	√						√	√	√		√	√	√	√		√	√		√	√	√	√	√
١٤٣٦١٣	Biochemistry	√	√	√	√	√	√	√	√	√	√	√	√	√	√						√	√	√	√		√	√	√

منسق البرنامج:

د. رانيا الليثى

رئيس مجلس القسم العلمى:

ا.د/ وفاء غنيم شوشة

نموذج رقم (١١ب)

جامعة: حلوان.
كلية : العلوم.
قسم : الكيمياء.

مسمى البرنامج	Master degree in Biochemistry

نموذج رقم (١١ب)) مصفوفة المعارف و المهارات المستهدفة من برنامج الماجستير فى الكيمياء الحيوية فى مقابل أهداف البرنامج

الاهداف العامة للبرنامج	المعارف							مهارات ذهنية							مهارات مهنية					مهارات عامة								
	a1. Fundamentals of biochemistry underlying biochemical reactions and techniques used to achieve them and applied Biochemistry and bioinformatics, which will be a particular importance to the pharmaceutical industry, biotechnology and medical analysis.	a2. Continuous and standing on the latest findings of scientific research in the field of biochemistry.	a3. The basics of scientific research in terms of commitment to implement the research methodology and procedures in the manner that protects invention researcher and commitment to the ethics of scientific research.	a4. The importance of quality performance in professional practice such as time management and available recruitment resources to solving problem and independence, as well as the interpretation and critical awareness of the quality of evidence.	a5. Realize the importance of application of knowledge in professional practice in the field of Biochemistry in terms of experimental design, critical evaluation of the results and conclusions, and develop the skills to use to analyze and display data for achieve comprehensive quality.	a6. Principles of the professional ethics in the field of biochemistry and the laws that govern and organize.	a7. Choose the quality of papers accepted in the scientific community, which linked with the problems of society and the environment.	b1 Analyze problems and evaluate the information in the field of biochemistry and work to resolve them.	b2. Solution the formulation and testing of assumptions using the appropriate experimental design and statistical analysis of the data to solve problems.	b3. The linking between Knowledge of Bioinformatics, Biotechnology and Applied Biochemistry, and help solve problems in the professional field of biochemistry.	b4 Planning and writing, and original management research program addresses the problem of research related to pharmaceutical or medical tests or a problem for society.	b5 Risk assessment, which may be exposed during the professional practice through dealing with biological material, such as infection of certain diseases or exposure to dangerous chemicals which are highly toxic or radioactive.	b6. Communication and permanent scientific planning for the development of performance professional which can access to the highest quality.	b7. Development of intellectual awareness about the escalating problems at the interface between areas of biology, chemistry, medicine and physics.	c1 Mastering of the basic professional skills for the practice of scientific research in the field of biochemistry which plays a key role in technological development.	c2 The continuation, through observation and measurement, and events or changes and registration that scientific data in the form of a report, and evaluation.	c3 Performance laboratory standard methods in the field of biochemistry and performance critical review for them.	c4 Prepare a proposal research for mien grant funding the appropriate research.	c5 Demonstrate self-direction and originality in tackling and solving problems, and work independently in planning and implementing tasks at the professional level or equivalent.	d1 Communicate effectively and clearly through talks, publications written and visual (view poster).	d2 Use of bioinformatics and molecular modeling software to serve the professional practice.	d3 Effective learn and knowledge of study skills are necessary for continued professional development.	d4 Integrate and evaluate information from a various sources, including libraries and databases and the Internet.	d5 Develop criteria and indicators for assessing the performance of others and the ability to design questionnaires.	d6. Time Management efficiently.	d7. Work independently or as part of the team and team leader in the distribution of work and the preparation of research.	d8. Self- learning independently with open-mindedness and monetary question construction.	d9. Efficient management of resources.
1-Provide students with the knowledge and skills necessary to conduct biochemistry research in the	√	√						√	√											√	√							

related fields.																									
2-develop research capacity and scientific thinking and development in the field of biochemistry from the reality of research plan for the faculty.	√	√						√	√														√	√	√	√
3-use the methods and new technologies by studying a number of academic courses and the performance of applied and academic research through integrated scientific thesis.	√	√	√					√	√	√	√				√	√			√	√		√				√

4-Provide graduates with the ethics of scientific research and the basics of quality in the study of non organic chemistry.	√	√	√	√				√	√	√	√	√			√	√	√	√		√	√	√					√
5-Encourage graduates to think creatively and self-reliance in solving complex problems in an orderly fashion and independence and the ability to develop himself professionally.	√	√	√	√	√			√	√	√	√	√	√	√	√	√	√			√	√	√	√			√	

6-Develop presentational skills of the graduate and developing ability to write professional reports.	√	√	√	√	√	√		√	√	√			√		√	√	√			√	√				√	√	√	√

منسق البرنامج:

د. رانيا الليثى

رئيس مجلس القسم العلمى:

ا.د/ وفاء غنيم شوشة

نموذج رقم (١١ب)

جامعة: حلوان.
كلية : العلوم.
قسم : الكيمياء

مسمى البرنامج	Master degree in Biochemistry

نموذج رقم (١١ب)) مصفوفة المعارف و المهارات المستهدفة من برنامج الماجستير فى الكيمياء الحيوية فى مقابل مواصفات الخريج

	المعارف							مهارات ذهنية							مهارات مهنية					مهارات عامة								
مواصفات الخريج Graduate master's program in biochemistry should be able to:	a1. Fundamentals of biochemistry underlying biochemical reactions and techniques used to achieve them and applied Biochemistry and bioinformatics, which will be a particular importance to the pharmaceutical industry, biotechnology and medical analysis.	a2. Continuous and standing on the latest findings of scientific research in the field of biochemistry.	a3. The basics of scientific research in terms of commitment to implement the research methodology and procedures in the manner that protects invention researcher and commitment to the ethics of scientific research.	a4. The importance of quality performance in professional practice such as time management and available recruitment resources to solving problem and independence, as well as the interpretation and critical awareness of the quality of evidence.	a5. Realize the importance of application of knowledge in professional practice in the field of Biochemistry in terms of experimental design, critical evaluation of the results and conclusions, and develop the skills to use to analyze and display data for achieve comprehensive quality.	a6. Principles of the professional ethics in the field of biochemistry and the laws that govern and organize.	a7. Choose the quality of papers accepted in the scientific community, which linked with the problems of society and the environment.	b1 Analyze problems and evaluate the information in the field of biochemistry and work to resolve them.	b2. Solution the formulation and testing of assumptions using the appropriate experimental design and statistical analysis of the data to solve problems.	b3. The linking between Knowledge of Bioinformatics, Biotechnology and Applied Biochemistry, and help solve problems in the professional field of biochemistry.	b4 Planning and writing, and original management research program addresses the problem of research related to pharmaceutical or medical tests or a problem for society.	b5 Risk assessment, which may be exposed during the professional practice through dealing with biological material, such as infection of certain diseases or exposure to dangerous chemicals which are highly toxic or radioactive.	b6. Communication and permanent scientific planning for the development of performance professional which can access to the highest quality.	b7. Development of intellectual awareness about the escalating problems at the interface between areas of biology, chemistry, medicine and physics.	c1 Mastering of the basic professional skills for the practice of scientific research in the field of biochemistry which plays a key role in technological development.	c2 The continuation, through observation and measurement, and events or changes and registration that scientific data in the form of a report, and evaluation.	c3 Performance laboratory standard methods in the field of biochemistry and performance critical review for them.	c4 Prepare a proposal research for mien grant funding the appropriate research.	c5 Demonstrate self-direction and originality in tackling and solving problems, and work independently in planning and implementing tasks at the professional level or equivalent.	d1 Communicate effectively and clearly through talks, publications written and visual (view poster).	d2 Use of bioinformatics and molecular modeling software to serve the professional practice.	d3 Effective learn and knowledge of study skills are necessary for continued professional development.	d4 Integrate and evaluate information from a various sources, including libraries and databases and the Internet.	d5 Develop criteria and indicators for assessing the performance of others and the ability to design questionnaires.	d6. Time Management efficiently.	d7. Work independently or as part of the team and team leader in the distribution of work and the preparation of research.	d8. Self- learning independently with open-mindedness and monetary question construction.	d9. Efficient management of resources.
1- Acknowledge the basics of scientific research and methodologies.	x		x			x				x			x				x	x				x	x					x	
2- Apply																														

professionally the fundamentals and methodologies of scientific research and the use of various tools.	x		x	x		x		x	x	x	x	x	x		x	x	x				x		x			x		
3- Analyze and use data in the fields of biochemistry.				x	x			x			x					x			x							x	x		
4-Show awareness of the ongoing problems and the late visions in the area of specialization		x		x						x				x	x				x					x				x	x
5-Identify problems and propose professional solutions to it.				x	x				x				x	x					x		x		x						x
6- Communicate effectively and the ability to		x	x										x	x						x						x	x		

lead teams.																										
7- Use available resources to bring the greatest benefit and preserve it.				x	x				x	x						x			x							x
8-Show awareness of his role in the development of society and preserve the environment in the light of global and regional changes.						x	x				x	x			x	x				x					x	x
9- Behave in a manner that reflects integrity, credibility and commitment to the rules of the profession.			x			x							x					x	x	x		x		x		

10-Self-development academically and professionally and capable of continuous learning.				x							x		x					x	x			x			x	x	x	

منسق البرنامج:

د. رانيا الليثى

رئيس مجلس القسم العلمى:

ا.د/ وفاء غنيم شوشة

نموذج رقم (١١ب)

جامعة: حلوان.
كلية : العلوم.
قسم : الكيمياء.

مسمى البرنامج	Master degree in Biochemistry

نموذج رقم (١١ب)) مصفوفة المعارف و المهارات المستهدفة من برنامج الماجستير فى الكيمياء الحيوية فى مقابل رؤية و رسالة الكلية

	المعارف							مهارات ذهنية							مهارات مهنية					مهارات عامة								
رؤية و رسالة الكلية	a1. Fundamentals of biochemistry underlying biochemical reactions and techniques used to achieve them and applied Biochemistry and bioinformatics, which will be a particular importance to the pharmaceutical industry, biotechnology and medical analysis.	a2. Continuous and standing on the latest findings of scientific research in the field of biochemistry.	a3. The basics of scientific research in terms of commitment to implement the research methodology and procedures in the manner that protects invention researcher and commitment to the ethics of scientific research.	a4. The importance of quality performance in professional practice such as time management and available recruitment resources to solving problem and independence, as well as the interpretation and critical awareness of the quality of evidence.	a5. Realize the importance of application of knowledge in professional practice in the field of Biochemistry in terms of experimental design, critical evaluation of the results and conclusions, and develop the skills to use to analyze and display data for achieve comprehensive quality.	a6. Principles of the professional ethics in the field of biochemistry and the laws that govern and organize.	a7. Choose the quality of papers accepted in the scientific community, which linked with the problems of society and the environment.	b1 Analyze problems and evaluate the information in the field of biochemistry and work to resolve them.	b2. Solution the formulation and testing of assumptions using the appropriate experimental design and statistical analysis of the data to solve problems.	b3. The linking between Knowledge of Bioinformatics, Biotechnology and Applied Biochemistry, and help solve problems in the professional field of biochemistry.	b4 Planning and writing, and original management research program addresses the problem of research related to pharmaceutical or medical tests or a problem for society.	b5 Risk assessment, which may be exposed during the professional practice through dealing with biological material, such as infection of certain diseases or exposure to dangerous chemicals which are highly toxic or radioactive.	b6. Communication and permanent scientific planning for the development of performance professional which can access to the highest quality.	b7. Development of intellectual awareness about the escalating problems at the interface between areas of biology, chemistry, medicine and physics.	c1 Mastering of the basic professional skills for the practice of scientific research in the field of biochemistry which plays a key role in technological development.	c2 The continuation, through observation and measurement, and events or changes and registration that scientific data in the form of a report, and evaluation.	c3 Performance laboratory standard methods in the field of biochemistry and performance critical review for them.	c4 Prepare a proposal research for mien grant funding the appropriate research.	c5 Demonstrate self-direction and originality in tackling and solving problems, and work independently in planning and implementing tasks at the professional level or equivalent.	d1 Communicate effectively and clearly through talks, publications written and visual (view poster).	d2 Use of bioinformatics and molecular modeling software to serve the professional practice.	d3 Effective learn and knowledge of study skills are necessary for continued professional development.	d4 Integrate and evaluate information from a various sources, including libraries and databases and the Internet.	d5 Develop criteria and indicators for assessing the performance of others and the ability to design questionnaires.	d6. Time Management efficiently.	d7. Work independently or as part of the team and team leader in the distribution of work and the preparation of research.	d8. Self- learning independently with open-mindedness and monetary question construction.	d9. Efficient management of resources.
رؤية الكلية تطمح كلية العلوم جامعة حلوان أن تحقق التميز فى تقديم خدمة تعليمية فى مجال العلوم الأساسية	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

والبحث العلمى التطبيقى والتكنولوجيا الحديثة .																											
رسالة الكلية كلية العلوم جامعة حلوان مؤسسة تعليمية حكومية تعمل على إعداد خريج متميز علميا قادر على المنافسة فى سوق العمل وذلك من خلال تقديم برامج أكاديمية فى مجال العلوم الأساسية والتطبيقية طبقا لمعايير الجودة وبحوث ودراسات علمية لبناء قاعدة بحثية تكنولوجية متطورة والمشاركة الفعالة فى خدمة وتنمية المجتمع محليا وإقليما	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

منسق البرنامج:

د. رانيا الليثى

رئيس مجلس القسم العلمى:

ا.د/ وفاء غنيم شوشة

نموذج رقم (١١ب)

جامعة: حلوان.
كلية : العلوم.
قسم : الكيمياء.

مسمى البرنامج	Master degree in Biochemistry

نموذج رقم (١١ب)) مصفوفة أساليب التعليم و التعلم المتبناه في مقابل المقررات الدراسية لبرنامج ماجستير الكيمياء الحيوية

الكود	المقررات الدراسية	Lectures	Discussion	Self learning by preparing presentation using library and internet resources.	tutorials
١٤٣٦٠١	Advanced Molecular biology & Genetic Engineering	x	x	x	x
١٤٣٦٠٢	Advances in Metabolism of Protein, Amino Acids & Nucleic Acids	x	x	x	
١٤٣٦٠٣	Cancer Biology & Tumor Markers	x	x	x	x
١٤٣٦٠٤	Advances in Separation Techniques and instrumental Analysis	x	x	x	x
١٤٣٦٠٥	Advances in Metabolism of carbohydrates & lipids	x	x	x	
١٤٣٦٠٦	Enzymes	x	x	x	
١٤٣٦١٠	Advanced Biotechnology	x	x	x	
١٤٣٦١١	Advanced Nutritional Biochemistry	x	x	x	

منسق البرنامج:
د. رانيا الليثى

رئيس مجلس القسم العلمى:
ا.د/ وفاء غنيم شوشة

نموذج رقم (١١ب)

مسمى البرنامج	Master degree in Biochemistry

جامعة: حلوان.
كلية : العلوم.
قسم : الكيمياء.

نموذج رقم (١١ب)) مصفوفة أساليب التقويم المتبناه فى مقابل المقررات الدراسية لبرنامج ماجستير الكيمياء الحيوية

الكود	المقررات الدراسية	Final written exam	Semester work			
			Mid-Term exam		Short quizzes	attendance percent
١٤٣٦٠١	Advanced Molecular biology & Genetic Engineering	x	x		x	
١٤٣٦٠٢	Advances in Metabolism of Protein, Amino Acids & Nucleic Acids	x	x		x	x
١٤٣٦٠٣	Cancer Biology & Tumor Markers	x	x		x	
١٤٣٦٠٤	Advances in Separation Techniques and instrumental Analysis	x	x		x	
١٤٣٦٠٥	Advances in Metabolism of carbohydrates & lipids	x	x		x	x
١٤٣٦٠٦	Enzymes	x	x		x	x
١٤٣٦١٠	Advanced Biotechnology	x	x		x	
١٤٣٦١١	Advanced Nutritional Biochemistry	x	x		x	x

منسق البرنامج:
د. رانيا الليثى

رئيس مجلس القسم العلمى:
ا.د/ وفاء غنيم شوشة

توصـــــيـــف مقـــررات

نموذج رقم (١٢)

جامعة : حلوان.

كلية : العلوم..

قسم : الكيمياء.

توصيف مقرر دراسي

١- بيانات المقرر		
الرمز الكودي: **143601**س	**اسم المقرر :** **Advanced Molecular Biology and Genetic Engineering**	**الفرقة / المستوي:** **pre-master course**
التخصص: Biochemistry	**عدد الوحدات الدراسية : نظري (٣)**	

٢- هدف المقرر :	
	1. Provide students with the modern knowledge and skills of Advanced Molecular Biology and Genetic Engineering 2. Enable students to update and develop their expertise through acquiring knowledge and professional skills in Advanced Molecular Biology and Genetic Engineering 3. Use modern technological and self-learning in the field of Advanced Molecular Biology and Genetic Engineering 4. Provide graduates with the ethics of scientific research and the basics of quality in the study of Advanced Molecular Biology and Genetic Engineering
٣- المستهدف من تدريس المقرر :	

أ- المعلومات والمفاهيم :	**At the end of the course the student should be able to:** a1- Define the concept, general knowledge for molecular biology and genetic engineering of DNA synthesis and protein synthesis in prokaryote and eukaryote. a2- Demonstrate some applications of molecular biology genetic engineering , Gene Expression and Restriction enzymes a3- State the basic principles of recombinant DNA technology and genetic testing for risk assessment for disease.
ب- المهارات الذهنية :	**At the end of the course the student should be able to:** b1- Compare the structure and composition of cellular DNA and RNA, eukaryote and prokaryote DNA replication, transcription and also the control of gene expression and translation in prokaryotes and eukaryotes. b2- Distinguish between the different hypotheses that are tested by PCR, DNA fingerprinting, RFLP mapping, Northern blots, Southernblots, and Western blots. b3- differentiate between the hypotheses that are tested by in vivo clonin transgenic mice, and homologous recombination mice.
جـ المهارات المهنية الخاصة :	**At the end of the course the student should be able to:** c1- practice the differenent techniques and experiments involved in (in-vivo cloning of animals, Southern blots,Northern blots, and Western blots.)
د – المهارات العامة :	d1. Communicate effectively in different ways. d2. Self and continuous learn.concept knowledge. d3.Time-management, self study, problem solving.
٤- محتوي المقرر :	I. Nucleic acids, Nucleoproteins structure II. DNA replication, Transcription, Translation of protein in Prokaryotes& Eukaryotes III. Protein translation inhibitors & Microbial antibiotics, Mutation & repair of DNA IV. Regulation of Gene Expression& Restriction enzymes V. Nucleic acid sequencing VI. PCR applications for Forensic DNA testing VII. Data banking basics of DNA fingerprinting

VIII. Biotechnology: historical Review& Molecular cloning IX. (Recombinant DNA Technology) X. Cloning vectors, & Gene splicing .DNA Mapping & Genomic Libraries XI. The human Genome project XII. Gene Therapy &Genetic testing for risk assessment for Disease. XIII. An introduction to Bioinformatics & proteomics	
. Lectures . - tutorials - seminars Discussion	٥- أساليب التعليم والتعلم
Specify additional hours to argue the difficult points with the less bright students.	٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة
	٧- تقويم الطـلاب :
1- Oral discussion to assess (a1,a2,b1) 2- Short quizzes to assess(a3,b2,b3) 3- Mid-Term exam to assess (a1-b2,d1,d2) 4-Final-Term exam to assess (a1-b1)	أ- الأساليب المستخدمة
Assessment 1 oral disscussion Week: (2-11) Assessment 2 short quizzes Week: (5) Assessment 4 Mid-Term exam Week: (9)	ب- التوقيت
• Mid-Term exam and other activities 40 % • Final-Term exam 60 % Total 100%	جـ - توزيع الدرجات
	٨- قائمة الكتب الدراسية والمراجع :
	أ- مذكرات
Essential books (text books) Principles of Biochemistry, Albert L. Lehninger, Published by Worth	ب- كتب ملزمة

Publishers, Incorporated,2000, ISBN 1572598913, 9781572598911	
Harper,s Physciological Chemistry(Recent edition), Lippincott,s Biochemistry	**جـ - كتب مقترحة**
Biochemical Education (http://www.sciencedirect.com/science/journal/03074412).- Journal of chemical education (http://jchemed.chem.wisc.edu/index.html).	**دـ دوريات علمية أو نشرات ... الخ**

أستاذ المادة : ا. د /السيد محمد السيد مهدى **رئيس مجلس القسم العلمى : ا. د / وفاء غنيم شوشه**

نموذج رقم (١١أ)

جامعة / أكاديمية : ...حلوان.....

كلية / معهد : ...العلوم.....

قسم : ....الكيمياء.....

مسمى المقرر	Advanced Molecular Biology and Genetic Engineering
كود المقرر	143601

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسية	المهارات الذهنية	مهارات مهنية	مهارات عامة
Nucleic acids, Nucleoproteins structure	1	a1	b1-b3	c1	d1
DNA replication, Transcriptio Translation of protein Prokaryot & Eukaryot	2-3	a2, a3	b2	c1	d1, d2
Protein translation inhibitors & Microbial antibiotics, Mutation & repair of DNA	4-5	a2, a3	b3, b2	c1	d3
Regulation of Gene Expression& Restriction enzymes	6	a1	B3	c1	d1, d2
Nucleic acid sequencing	7	a2	b1, b2	c1	3d
PCR applications for Forensic DNA testing	8-9	a2	b3	c1	d2
Data banking basics of DNA				c1	

d1, d2		b1	a1	10	fingerprinting
d3	c1	b1, b2	a1, a3	11-12	Biotechnology: historical Review& Molecular cloning (Recombinant DNA Technology)
d3, d1	c1	b1	a2	13	Cloning vectors, & Gene splicing .DNA Mapping & Genomic Libraries
d2	c1	b3, b2	a1	14	The human Genome project
d1	c1	b3	a1	15	Gene Therapy & Genetic testing for risk assessment for Disease. An introduction to Bioinformatics & proteomics

أستاذ المادة : ا. د /السيد محمد السيد مهدى **رئيس مجلس القسم العلمى : ا. د / وفاء غنيم شوشه**

جامعة : ...حلوان.
كلية : ...العلوم.
قسم : ....الكيمياء.

مسمى المقرر	Advanced Molecular Biology and Genetic Engineering
كود المقرر	143601

(ب) مصفوفة ملائمة أساليب التقويم للمعارف و المهارات المستهدفة من المقرر الدراسى

Semester-work (activities)	Short quizzes	Mid-term	Final written examination	مخرجات التعلم ILOS	
	x	x	X	a1- Define the concept, general knowledge for molecular biology and genetic engineering of DNA synthesis and protein synthesis in prokaryote and eukaryote.	المعلومات و المفاهيم
X			X	a2- Demonstrate some applications of molecular biology genetic engineering , Gene Expression and Restriction enzymes	
X	X		X	a3- State the basic principles of recombinant DNA technology and genetic testing for risk assessment for disease.	
X		x	X	b1- Compare the structure and composition of cellular DNA and RNA, eukaryote and prokaryote DNA replication, transcription and also the control of gene expression and translation in prokaryotes and eukaryotes.	المهارات الذهنية
	x		X	b2- Distinguish between the different hypotheses that are tested by PCR, DNA fingerprinting, RFLP mapping, Northern blots, Southernblots, and Western blots..	

	b3- differentiate between the hypotheses that are tested by in vivo cloning, transgenic mice, and homologous recombination mice.	X			X
المهارات المهنية	c1- practice the differenent techniques and experiments involved in (In- vivo cloning of animals , Southern blots,Northern blots, and Western blots.)		x	x	
المهارات العامة	d1- Communicate effectively in different ways.				X
	d2- Self and continuous learn.	X			X
	d3.Time-management, self study, problem solving.	X	x	X	X

أستاذ المادة : **رئيس مجلس القسم العلمى :**

أستاذ المادة : ا. د /السيد محمد السيد مهدى **ا. د / وفاء غنيم شوشه**

نموذج رقم (١١أ)

جامعة : ...حلوان.
كلية : ...العلوم.
قسم : ....الكيمياء.

مسمى المقرر	**Advanced Molecular Biology and Genetic Engineering**
كود المقرر	**143601**

(ج) مصفوفة ملائمة أساليب التعليم و التعلم للمعارف و المهارات المستهدفة من المقرر الدراسى

seminars	tutorials	Discussion	Lectures	مخرجات التعلم ILOS	
	X		X	a1- Define the concept, general knowledge for molecular biology and genetic engineering of DNA synthesis and protein synthesis in prokaryote and eukaryote.	المعلومات والمفاهيم
X		X	X	a2- Demonstrate some applications of molecular biology genetic engineering , Gene Expression and Restriction enzymes	
		X	X	a3- State the basic principles of recombinant DNA technology and genetic testing for risk assessment for disease.	
	X		X	b1- Compare the structure and composition of cellular DNA and RNA, eukaryote and prokaryote DNA replication, transcription and also the control of gene expression and translation in prokaryotes and eukaryotes.	المهارات الذهنية
X		X	X	b2- Distinguish between the different hypotheses that are tested by PCR, DNA fingerprinting, RFLP mapping, Northern blots, Southernblots, and Western blots..	

			X	b3- differentiate between the hypotheses that are tested by in vivo cloning, transgenic mice, and homologous recombination mice.	
	X	X	X	c1- practice the differenent techniques and experiments involved in (In- vivo cloning of animals , Southern blots,Northern blots, and Western blots.)	المهارات المهنية
	X	X		d1- Communicate effectively in different ways.	المهارات العامة
			X	d2- Self and continuous learn.	
X	X		X	d3.Time-management, self study, problem solving.	

أستاذ المادة : **رئيس مجلس القسم العلمى :**

أستاذ المادة : ا. د /السيد محمد السيد مهدى **ا. د / وفاء غنيم شوشه**

نموذج رقم (١٢)

جامعة: حلوان

كلية: العلوم

قسم : الكيمياء

توصيف مقرر دراسى

١- بيانات المقرر		
الرمز الكودى : 143602	**اسم المقرر : Advanced Proteins, Amino Acids and Nucleic Acid Metabolism**	**الفرقة / المستوى: pre-master students** **الفصل الدراسى الاول**
التخصص : biochemistry	**عدد الوحدات الدراسية :** ٣ **نظرى**	

٢- هدف المقرر :	Proteins are the most abundant and functionally diverse molecules in living systems,so the Course is designed to allow students to develop and demonstrate the following scientific aspects of the discipline: 1. The fundamentals of protein architecture, including the structural organization and physical properties of the amino acid constituents. 2. Metabolic processes of protein, amino acids, nucleotides and different related metabolic disorders. 3. The relation between structure and function in protein families : immunoglobulin, hemoglobin, glycoprotein, lipoprotein and fibrous protein. 4. The chemical structure of RNA, DNA and its relationship with the biochemical function showing role of DNA in regulation of expression of biological information (i.e., transcription and translation).
٣- المستهدف من تدريس المقرر :	
أ- المعلومات و المفاهيم :	**At the end of the course the student should be able to:** a1. Identify fundamental concepts of Proteins, modern theories and be able to apply them in pharmaceutical industry, biotechnology and medical analysis. a3. Discuss the basics of proteins and nucleic acids scientific research in terms of commitment to implement the research methodology.
ب – المهارات الذهنية :	**At the end of the course the student should be able to:** b1-Analyze problems and evaluate the information between Proteins , nucleic acids metabolism and metabolic disorders. b2- Evaluate scientific research in experimental design and appearance knowledge of

molecular techniques,data analysis and review of previous research in this field.. b3. Contrast between knowledge of-protein structure and a molecular approach to medicine, e.g. sickle cell anemia.	
At the end of the course the student should be able to: c2. Apply scientific data and research results in reports form in field of biosynthesis of glycoprotein, lipid linked protein, lipoprotein, collagen, hemoglobin and its function . c5. Employ the techniques used designing protocols for the laboratory investigations of proteins metabolic disorders and how deoxyribonucleotides are synthesized and the steps which are targets of anticancer drugs .	جـ – المهارات المهنية الخاصة بالمقرر :
At the end of the course the student should be able to: d1. Develop basic problem solving skills including understanding how to interpret experimental Biochemical data, core-concept knowledge. d2.Extend a helping hand to other different groups and access their performance. d3. Use all available means from libraries and information network to understand roles and mechanisms of DNA in protein synthesis and genetic disorders. d4. Manage time and scientific cooperation.	د – المهارات العامة :
1- Amino acid deamination: Transamination, oxidative deamination and other deaminations 2- The urea cycle and related metabolic disorders 3- Metabolic breakdown of individual amino acid and related metabolic disorders 4- Amino acid as biosynthetic precursor, Heme biosynthesis and degradation 5- Biosynthesis of biological active amines, glutathione, tetrahydrofolate cofactor, Nicotinamide, Neurotransmitters, melanin, creatine phosphate, nitric acid and related metabolic disorders 6- Amino acid biosynthesis (Essential and non- Essential) & related metabolic disorders 7-protein structure and a molecular approach to medicine, e.g. sickle cell anemia 8- Biosynthesis of glycoprotein, lipid linked protein and lipoprotein, collagen, hemoglobin and its function 9- DNA Replication, transcription, translation and post translation modification - Nucleotide metabolism.	**٤ـ محتوى المقرر :**
- Lectures. -Discussion sessions. - Self learning by preparing presentation using library and internet resources.	**٥ـ اساليب التعليم و التعلم**
مناقشات مفتوحة – مشروع بحثى يتعامل من خلاله الطالب مع وسائل المعلومات الحديثة – تخصيص ساعات زائدة للإرشاد أكاديمي مع المتابعة المنتظمة للطالب (إن وجد)	**٦ـ أساليب التعليم و التعلم للطلاب ذوى القدرات**

	المحدودة
٧- تقويم الطلاب :	
أ- الأساليب المستخدمة	• Mid-Term exam to assess student understanding and effectiveness of teaching • Written final-term exam to assess the student skills to express thoughtful of the major concepts covered by the studied course • Student semester-work and team work skills • Attendance percent of each student in lectures, oral discussion and activities
ب – التوقيت	Assessment 1 … Mid-Term exam Week ……7……. Assessment 2…… Final exam Week :15th to be decided by general exam
جـ – توزيع الدرجات	• Semester Work 40 % • Final-Term exam 60 % • Total 100%
٨- قائمة الكتب الدراسية و المراجع :	
أ- مذكرات	لا يوجد
ب- كتب ملزمة	Essential books (text books) Principles of Biochemistry, Albert L. Lehninger, Published by Worth Publishers, Incorporated,2010, ISBN 1572598913, 9781572598911 Textbook of biochemistry with clinical correlations 7th edition
جـ- كتب مقترحة	Harper,s Physciological Chemistry (Recent edition), Lippincott,s Biochemistry. 5th edition(2011).
د- دوريات علمية أو نشرات ... إلخ	BiochemicalEducation(http://www.sciencedirect.com/science/journal/03074412). Journal of chemical education (http://jchemed.chem.wisc.edu/index.html).

أستاذ المادة : ا.د /مهجة شفيق عبدالله **د/رانيا الليثى** **رئيس مجلس القسم العلمى : ا. د / وفاء شوشه**

نموذج رقم (١١)

جامعة : حلوان.

كلية : العلوم.

قسم : الكيمياء.

مسمى المقرر	Advanced Proteins, Amino Acids and Nucleic Acid Metabolism
كود المقرر	143602

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسية	المهارات الذهنية	مهارات مهنية	مهارات عامة
Amino acid deamination: Transamination, oxidative deamination and other deaminations	1	a1	b2		
The urea cycle and related metabolic disorders	2	a1,a3	b3	c2	d2
Metabolic breakdown of individual amino acid and related metabolic disorders	3-4	a1,a3,	b2	c5	d1
Amino acid as biosynthetic precursor, Heme biosynthesis and degradation	5-6	a1,a3	b1	c2	d3
Biosynthesis of biological active amines, glutathione, tetrahydrofolate cofactor,Nicotinamide, Neurotransmitters, melanin, creatine phosphate, nitric acid and related metabolic disorders	7	a1,a3	b3	c2	d4
Amino acid biosynthesis (Essential and non- Essential) &		a1,a3	b2	c5	d3

				8-9	related metabolic disorders
d1	c2	b1	a1,a3	10	protein structure and a molecular approach to medicine, e.g. sickle cell anemia
d4	c2	b2	a1,a3	11	Biosynthesis of glycoprotein, lipid lined protein and lipoprotein, collagen, hemoglobin and its function
d3	c5	b1	a1,a3	12	DNA Replication, transcription, translation and post translation modification
d2	c5	b3	a1,a3	13	Nucleotide metabolism

أستاذ المقرر

أ.د/ مهجة شفيق عبد الله

د/ رانيا الليثى

رئيس مجلس القسم العلمى:

ا.د. وفاء شوشه

نموذج رقم (١١)

جامعة : حلوان.
كلية : العلوم.
قسم : الكيمياء..

مسمى المقرر	Advanced Proteins, Amino Acids and Nucleic Acid Metabolism
كود المقرر	143602

(ب) مصفوفة تحقق ملائمة أساليب التقويم لمحتوى المقرر

Semester-work	Final written examination	مخرجات التعلم ILOS	
x	x	a1. Identify fundamental concepts of Proteins, modern theories and be able to apply them in pharmaceutical industry, biotechnology and medical analysis.	المعلومات و المفاهيم
x	x	a3. Discuss the basics of proteins and nucleic acids scientific research in terms of commitment to implement the research methodology.	
x	x	b1-Analyze problems and evaluate the information between Proteins, nucleic acids metabolism and metabolic disorders.	المهارات الذهنية
	x	b2- Evaluate scientific research in experimental design and appearance knowledge of molecular techniques,data analysis and review of previous research in this field..	
x	x	b3. Contrast between knowledge of-protein structure and a molecular approach to medicine, e.g. sickle cell anemia.	
	x	c2. Apply scientific data and research results in reports form in field of biosynthesis of glycoprotein, lipid linked protein, lipoprotein, collagen, hemoglobin and its function.	المهارات المهنية
x		c5. Employ the techniques used designing protocols for the laboratory investigations of proteins metabolic disorders and how deoxyribonucleotides are synthesized and the steps which are targets of anticancer drugs.	

المهارات العامة	d1. Develop basic problem solving skills including understanding how to interpret experimental biochemical data, core-concept knowledge.		x
	d2.Extend a helping hand to other different groups and access their performance.	x	x
	d3. Use all available means from libraries and information network to understand roles and mechanisms of DNA in protein synthesis and genetic disorders.	x	x
	d4. Manage time and scientific cooperation.	x	x

أستاذ المقرر

أ.د/ مهجة شفيق عبد الله

د/ رانيا الليثى

رئيس مجلس القسم العلمى:

ا.د. وفاء شوشه

نموذج رقم (١١)

جامعة : ...حلوان.

كلية : ...العلوم..

قسم : ..الكيمياء..

مسمى المقرر	Advanced Proteins, Amino Acids and Nucleic Acid Metabolism
كود المقرر	143602

(ج) مصفوفة تحقق ملائمة أساليب التعليم و التعلم لمحتوى مقرر

Self learning	Discussion sessions	Lecturess	مخرجات التعلم ILOS	
x		x	a1.Identify fundamental concepts of Proteins, modern theories and be able to apply them in pharmaceutical industry, biotechnology and medical analysis.	المعلومات والمفاهيم
x	x	x	a3. Discuss the basics of proteins and nucleic acids scientific research in terms of commitment to implement the research methodology.	
x	x	x	b1-Analyze problems and evaluate the information between Proteins, nucleic acids metabolism and metabolic disorders.	المهارات الذهنية
		x	b2- Evaluate scientific research in experimental design and appearance knowledge of molecular techniques,data analysis and review of previous research in this field..	
x	x	x	b3. Contrast between knowledge of-protein structure and a molecular approach to medicine, e.g. sickle cell anemia.	
	x	x	c2. Apply scientific data and research results in reports form in field of biosynthesis of glycoprotein, lipid linked protein, lipoprotein, collagen, hemoglobin and its function.	المهارات المهنية
x	x	x	c5. Employ the techniques used designing protocols for the laboratory investigations of proteins metabolic disorders and how deoxyribonucleotides are synthesized and the steps which are targets of	

			anticancer drugs .	
x	x	x	d1. Develop basic problem solving skills including understanding how to interpret experimental Biochemical data, core-concept knowledge.	المهارات العامة
x			d2.Extend a helping hand to other different groups and access their performance.	
x	x	x	d3. Use all available means from libraries and information network to understand roles and mechanisms of DNA in protein synthesis and genetic disorders.	
x	x		d4. Manage time and scientific cooperation.	

أستاذ المقرر

أ.د/ مهجة شفيق عبد الله

د/ رانيا الليثى

رئيس مجلس القسم العلمى:

ا.د. وفاء شوشه

نموذج رقم (١٢)

جامعة : حلوان

كلية :العلوم.

قسم : الكيمياء.

توصيف مقرر دراسي

١- بيانات المقرر		
الرمز الكودي: 143603	**اسم المقرر :** Cancer Biology and Tumor Markers	**الفرقة / المستوي:** pre-master course
التخصص: Biochemistry	**عدد الوحدات الدراسية : نظري (٣)**	

٢- هدف المقرر :	The Course is designed to allow students to develop and demonstrate the following scientific aspects of the discipline: 1. historical perspective, classification and nomenclature of Cancer. 2. Carcinogenesis types, Cancer initiation. 3. Carcinogenesis promotion, progression, Angiogenesis, invasion& Metastasis. 4. Cellular proto-oncogenes, oncogene activation & Retroviral oncogenes. 5. Growth factors, Growth factors receptors & Signal transduction. 6. Tumor suppressor genes& Cell cycle transduction. 7. Cell: cell interactions & cell adhesion 8. Apoptosis, Necrosis & Senescence. 9. Strategies of anticancer chemotherapy& mechanisms of cytotoxic drugs. 10. Cancer immunity& anticancer strategies of immunotherapy. 11. Free radicals, metabolic oxidative stress & cancer Antioxidants. 12. Cancer molecular genetics & gene therapy.

٣- المستهدف من تدريس المقرر :	
At the end of the course the student should be able to: a1- Discuss mechanismsof transport of small molecules across the membrane, including simple diffusion, facilitative diffusion, active transport by Ca2+ ATPase,Na+,K+, ATPase, ABC transporters, secondary active transport. a2- Describe the stages of the cell cycle and the events associated with each stage, the action of hormones and other biologically active agents that act via receptors in the nucleus and/or cytoplasm, the action of "small G proteins a3- Define growth, growth factor, growth factor receptor,mitogen and Explain the relationship between cancer & age, cellular and genetic basis of cancer, risk factors of cancer.	**أ- المعلومات والمفاهيم :**

At the end of the course the student should be able to: b1. Establish the validity of principals and concepts in the field of Cancer Biology and Tumor Markers . b2. Design programs and strategies to solve problems in the field of Cancer Biology and Tumor Markers	**ب- المهارات الذهنية :**
At the end of the course the student should be able to: c1- Assess of cell kinitics, tritiated thymidine and autoradiography, analysis of cell kinitics by flow cytometry,applications of flow cytometry. c2- Apply scientific data and research results in chemoprevention of cancer, agents that alter bioactivation of carcinogens, blocking agents, suppressor agents & hormone manipulations, human chemo preventive trials.	**جـ المهارات المهنية الخاصة :**
At the end of the course the student should be able to: d1. Learn by a combination of lectures and textbooks. d2. Develop time planning; working towards deadlines. d3. solve problems including understanding how to interpret experimental Biochemical data, core-concept knowledge. d4. Manage time and self study.	**د – المهارات العامة :**
I. Membrane transport/cell cycle II. Intracellular signalling I III. Intracellular signaling II IV. Oncogenes/apoptosis V. Genetic bases of cancer VI. Chemical & radiation carcinogenesis	**٤- محتوي المقرر :**

VII. Cell proliferation & cell death IX. Tumor progression & metastasis X. The extracellular enviroment and cancer XI. Immunology related to cance XII. Pharmacology of anticancer drugs	
Lectures tutorials seminars	٥ـ أساليب التعليم والتعلم
Specify additional hours to argue the difficult points with the less bright students.	٦ـ أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة
٧ـ تقويم الطـلاب :	
1- Oral discussion to assess (a1-a8,b1,b2) 2- Short quizzes to assess(a5,b3,b4) 3- Mid-Term exam to assess (a1-c2,d1,d2) 5- Final-Term exam to assess (a1-d4)	أ ـ الأساليب المستخدمة
Assessment 1 oral disscussion W eek: (2-12) Assessment 2 short quizzes W eek: (7) Assessment 3 Mid-Term exam W eek: (9)	ب ـ التوقيت
• Mid-Term exam and other activities 40 % • Final-Term exam 60 % Total 100%	جـ ـ توزيع الدرجات
٨ـ قائمة الكتب الدراسية والمراجع :	
لا يوجد	أ ـ مذكرات
Essential books (text books) Principles of Biochemistry, Albert L. Lehninger, Published by Worth	ب ـ كتب ملزمة

	Publishers, Incorporated,2000, ISBN 1572598913, 9781572598911
جـ - كتب مقترحة	Harper,s Physciological Chemistry(Recent edition), Lippincott,s Biochemistry
د- دوريات علمية **أو نشرات ... الخ**	Biochemical Education (http://www.sciencedirect.com/science/journal/03074412).- Journal of chemical education (http://jchemed.chem.wisc.edu/index.html).

أستاذ المادة : ا. د /حاتم المزين **رئيس مجلس القسم العلمى : ا. د / وفاء غنيم شوشه**

نموذج رقم (١١أ)

مسمى المقرر	Cancer Biology and Tumor Markers
كود المقرر	143603

جامعة : .حلوان.

كلية : العلوم.

قسم : الكيمياء

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسية	المهارات الذهنية	مهارات مهنية	مهارات عامة
Membrane transport/cell cycle	1	a1, a3	b2,	c1	d1, d2, d3
Intracellular signalling I	2	a2	b1, b2	c1, c2	d2
Intracellular signaling II	3	a3	b2,	c1	d2, d4
Oncogenes/apoptosis	4	a2	b1,	c1	d1, d3
Genetic bases of cancer	5	a1, a2,	b1,	c2	d1
Chemical & radiation carcinogenesis	6-7	a1, a2,	b1, b2,	c1, c2	d1, d2
Cell proliferation & cell death	8	a3	b2,	c1	d1, d4
Tumor progression & metastasis	9	a1,	b2,	c1, c2	d2, d3
The extracellular enviroment and cancer	10	a2,	b1	c2	d2, d3
Immunology related to cance	11	a1, a3	b2	c1	d1, d2, d4
Pharmacology of anticancer drugs	12-13	a2,	b1,	c1, c2	d3, d4

أستاذ المادة : ا. د /حاتم المزين

رئيس مجلس القسم العلمى : ا. د / وفاء غنيم شوشه

نموذج رقم (١١)

جامعة : ...حلوان.
كلية : ...العلوم..
قسم : ..الكيمياء..

مسمى المقرر	Cancer Biology and Tumor Markers
كود المقرر	143603

(ب) **مصفوفة تحقق ملائمة أساليب التقويم لمحتوى المقرر**

Semester-work	Final written examination	مخرجات التعلم ILOS	
X	X	a1- Discuss mechanismsof transport of small molecules across the membrane, including simple diffusion, facilitative diffusion, active transport by Ca2+ ATPase,Na+,K+, ATPase, ABC transporters, secondary active transport.	المعلومات والمفاهيم
	X	a2- Describe the stages of the cell cycle and the events associated with each stage, the action of hormones and other biologically active agents that act via receptors in the nucleus and/or cytoplasm, the action of "small G proteins.	
X	X	a3- Define growth, growth factor, growth factor receptor,mitogen and Explain the relationship between cancer & age, cellular and genetic basis of cancer, risk factors of cancer.	
X	X	b1. Establish the validity of principals and concepts in the field of Cancer Biology and Tumor Markers .	المهارات الذهنية
	X	b2. Design programs and strategies to solve problems in the field of Cancer Biology and Tumor Markers	
	X	c1- Assess of cell kinitics, tritiated thymidine and autoradiography, analysis of cell kinitics by flow cytometry,applications of flow cytometry.	المهارات المهنية
X		c2- Apply scientific data and research results in chemoprevention of cancer, agents that alter bioactivation of carcinogens, blocking agents, suppressor agents & hormone manipulations, human chemo preventive trials.	

X		d1. Learn by a combination of lectures and textbooks.	المهارات العامة
X	X	d2. Develop time planning; working towards deadlines.	
X	X	d3. solve problems including understanding how to interpret experimental Biochemical data, core-concept knowledge.	
X		d4. Manage time and self study.	

أستاذ المقرر **رئيس مجلس القسم العلمى:**

أ.د/ حاتم المزين **ا.د. وفاء شوشه**

نموذج رقم (١١)

جامعة : ...حلوان.
كلية : ...العلوم..
قسم : ..الكيمياء..

مسمى المقرر	Cancer Biology and Tumor Markers
كود المقرر	143603

(ج) مصفوفة تحقق ملائمة أساليب التعليم و التعلم لمحتوى مقرر

	مخرجات التعلم ILOS	Seminars	Lectures	Tutorials
المعلومات و المفاهيم	a1- Discuss mechanismsof transport of small molecules across the membrane, including simple diffusion, facilitative diffusion, active transport by Ca2+ ATPase,Na+,K+, ATPase, ABC transporters, secondary active transport.	X	X	
	a2- Describe the stages of the cell cycle and the events associated with each stage, the action of hormones and other biologically active agents that act via receptors in the nucleus and/or cytoplasm, the action of "small G proteins			X
	a3- Define growth, growth factor, growth factor receptor,mitogen and Explain the relationship between cancer & age, cellular and genetic basis of cancer, risk factors of cancer.		X	X
المهارات الذهنية	b1. Establish the validity of principals and concepts in the field of Cancer Biology and Tumor Markers .	X	X	X
	b2. Design programs and strategies to solve problems in the field of Cancer Biology and Tumor Markers	X		
المهارات المهنية	c1- Assess of cell kinitics, tritiated thymidine and autoradiography, analysis of cell kinitics by flow cytometry,applications of flow cytometry.	X		X
	c2- Apply scientific data and research results in chemoprevention of cancer, agents that alter bioactivation of carcinogens, blocking agents, suppressor agents & hormone manipulations,		X	

			human chemo preventive trials.	
	X		d1. Learn by a combination of lectures and textbooks.	المهارات العامة
X	X	X	d2. Develop time planning; working towards deadlines.	
	X	X	d3. solve problems including understanding how to interpret experimental Biochemical data, core-concept knowledge.	
X		X	d4. Manage time and self study.	

أستاذ المقرر

أ.د/ حاتم المزين

رئيس مجلس القسم العلمى:

ا.د. وفاء شوشه

نموذج رقم (١٢)

جامعة :.حلوان.

كلية : العلوم

قسم : الكيمياء.

توصيف مقرر دراسي

١- بيانات المقرر		
الرمز الكودي: 143604	**اسم المقرر :** Advanced Separation Methods and Instrumental Analysis	**الفرقة / المستوي:** pre-master course
التخصص: Biochemistry	**عدد الوحدات الدراسية : نظري (٣)**	

٢- هدف المقرر :	1. Provide students the principles of the important analytical techniques used in clinical biochemistry. 2. Enrich students knowledgeable about recent advances in these techniques, equipment available and the choice they offer for specific measurement. 3. Provide a thorough appreciation of the current issues in laboratory analysis and service. 4. Reinforce lecture topics in analysis & instrumentation. 5. Familiarize student with the key analytical techniques used in clinical biochen 6. Offer opportunity of planning and conducting experimental work, processing data and producing reports.
٣- المستهدف من تدريس المقرر :	

أ- المعلومات والمفاهيم :	**At the end of the course the student should be able to:** a1- Identify the following scientific aspects electrophoretic separation techniques and their applications in nucleic acids &proteins, mass spectrometry applications in aiochemistry, Enzyme assays & Isoenzyme studies. a2- Describe biosensors & its biochemical application and molecular biology techniques, including (PCR, Northern & southern Blotting, DNA sequencing types, gene libraries, nick translation& probes).

ب- المهارات الذهنية :	**At the end of the course the student should be able to:** b1. Construct the validity of principals and concepts in Spectrophotometry, Atomic Absorption,Bioluminescence Chemiluminescence & Nephelometry. b2. Link between knowledge of Principles of Analytical Biochemistry and assay validations and quality assurance.
جـ- المهارات المهنية الخاصة :	**At the end of the course the student should be able to:** c1- Apply Immunoassay basic principles, components, separations and assa labels, Enzyme linked immunosorbent assay (ELISA) . in solving professiona problems.
د – المهارات العامة :	**At the end of the course the student should be able to:** d1. Learn by a combination of lectures and textbooks. d2. Develop time planning; working towards deadlines. d3. Solve problems.
٤- محتوي المقرر :	I. Separation electrophoretic techniques II. Spectrophotometry, III- Atomic absorption & nephelometry IV. Electrophoresis IIV- Electrophoretic applications of nucleic acids & proteins

٥- أساليب التعليم والتعلم	Lectures tutorials seminars
٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة	Specify additional hours to argue the difficult points with the less bright students.

٧- تقويم الطـلاب :	
أ- الأساليب المستخدمة	1- Oral discussion to assess (a1,a2,b1) 2- short quizzes to assess (a4,b2,b3) 3- Mid-Term exam to assess (a1-b3,d1,d2) 4- Final-Term exam to assess (a1-d2)
ب- التوقيت	Assessment 1 oral disscussion W eek: (2-9) Assessment 2 short quizzes W eek: (6) Assessment 3 Mid-Term exam W eek: (10)
جـ - توزيع الدرجات	• Mid-Term exam and other activities 40 % • Final-Term exam 60 % Total 100%
٨- قائمة الكتب الدراسية والمراجع :	
أ- مذكرات	**لايوجد**
ب- كتب ملزمة	Essential books (text books) Principles of Biochemistry, Albert L. Lehninger, Published by Worth Publishers, Incorporated,2000, ISBN 1572598913, 9781572598911
جـ - كتب مقترحة	Harper,s Physciological Chemistry(Recent edition), Lippincott,s Biochemistr
د- دوريات علمية أو نشرات ... الخ	Biochemical Education (http://www.sciencedirect.com/science/journal/03074412).- Journal of chemical education (http://jchemed.chem.wisc.edu/index.html).

أستاذ المادة : ا. د /وفاء غنيم شوشة **رئيس مجلس القسم العلمى : ا. د / وفاء غنيم شوشه**

نموذج رقم (١١أ)

جامعة : .حلوان

كلية : .العلوم.

قسم : الكيمياء.

مسمى المقرر	Advanced Separation Methods and Instrumental Analysis
كود المقرر	143604

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسية	المهارات الذهنية	مهارات مهنية	مهارات عامة
Separation electrophoretic techniques	1-3	a2,	b1	c1	d1, d2, d3
Spectrophotometry	4-5	a1,	b1, b2	c1	d1, d2
atomic absorption & nephelometry	6-8	a1	b2,	c1	d1, d3
Electrophoresis	9-10	a2	b1	c1	d1, d2, d3
electrophoretic applications of nucleic acids & proteins	11-13	, a1	b2,	c1	d1, d3

أستاذ المادة : ا.د/ وفاء غنيم شوشة

رئيس مجلس القسم العلمي : ا.د/ وفاء غنيم شوشة

نموذج رقم (١١)

جامعة: حلوان.
كلية : العلوم..
قسم : الكيمياء.

مسمى المقرر	Advanced Separation Methods and Instrumental Analysis
كود المقرر	143604

(ب) مصفوفة تحقق ملائمة أساليب التقويم لمحتوى المقرر

Semester-work	Final written examination	مخرجات التعلم ILOS	
	X	a1- Identify the following scientific aspects electrophoretic separation techniques and their applications in nucleic acids &proteins, mass spectrometry applications in aiochemistry, Enzyme assays & Isoenzyme studies.	المعلومات والمفاهيم
X	X	a2- Describe biosensors & its biochemical application and molecular biology techniques, including (PCR, Northern & southern Blotting, DNA sequencing types, gene libraries, nick translation& probes).	
X	X	b1. Construct the validity of principals and concepts in Spectrophotometry, Atomic Absorption,Bioluminescence Chemiluminescence & Nephelometry.	المهارات الذهنية
	X	b2. Link between knowledge of Principles of Analytical Biochemistry and assay validations and quality assurance.	
	X	c1- Apply Immunoassay basic principles, components, separations and assay labels, Enzyme linked immunosorbent assay (ELISA) . in solving professional problems..	المهارات المهنية
X		d1. Learn by a combination of lectures and textbooks.	المهارات العامة
X	X	d2. Develop time planning; working towards deadlines.	

	d3. Solve problems.	X	X

أستاذ المقرر

أ.د/ وفاء شوشه

رئيس مجلس القسم العلمى:

ا.د. وفاء شوشه

نموذج رقم (١١)

جامعة : حلوان.

كلية : العلوم..

قسم : كيمياء..

مسمى المقرر	Advanced Separation Methods and Instrumental Analysis
كود المقرر	143604

(ج) مصفوفة تحقق ملائمة أساليب التعليم و التعلم لمحتوى مقرر

	مخرجات التعلم ILOS	Seminars	Lectures	Tutorials
المعلومات والمفاهيم	a1- Identify the following scientific aspects electrophoretic separation techniques and their applications in nucleic acids &proteins, mass spectrometry applications in aiochemistry, Enzyme assays & Isoenzyme studies.	X	X	
	a2- Describe biosensors & its biochemical application and molecular biology techniques, including (PCR, Northern & southern Blotting, DNA sequencing types, gene libraries, nick translation& probes).			X
المهارات الذهنية	b1. Construct the validity of principals and concepts in Spectrophotometry, Atomic Absorption,Bioluminescence & Nephelometry.	X	X	X
	b2. Link between knowledge of Principles of Analytical Biochemistry and assay validations and quality assurance	X		
المهارات المهنية	c1- Apply Immunoassay basic principles, components, separations and assay labels, Enzyme linked immunosorbent assay (ELISA) in solving professional problems.	X		X
المهارات العامة	d1. Learn by a combination of lectures and textbooks.		X	
	d2. Develop time planning; working towards deadlines.	X	X	X
	d3. Solve problems.	X	X	

أستاذ المقرر

ا.د. وفاء شوشه

رئيس مجلس القسم العلمى:

ا.د. وفاء شوشه

نموذج رقم (١٢)

جامعة: حلوان

كلية: العلوم

قسم : الكيمياء

توصيف مقرر دراسي

١- بيانات المقرر		
الرمز الكودي: **143605**	**اسم المقرر :** **Advances in Metabolism of carbohydrates & lipids with physiological correlation to metabolic disorders**	**الفرقة / المستوي:** **Pre-Master of biochemistry 2nd semester)**
التخصص: **Biochemistry**	**عدد الوحدات الدراسية :** **نظري ٣**	

٢- هدف المقرر :	1. It provides information about the metabolism of carbohydrates and lipids with metabolic disorders. 2. Understanding how theoretical information can be applied practically. 3. Helping the postgraduate students to have an experience about the way of preparing a project in this field.

٣- المستهدف من تدريس المقرر :

أ- المعلومات والمفاهيم :	**At the end of this course, the students will be able to:** a1- Illustrate physical& chemical properties of carbohydrates, classification, nomenclature and metabolism. a2- Outline the ethics of scientific research in the biochemistry fields.. a3. Contrast the of new basics of pure science not covered during the undergraduate stage.

ب- المهارات الذهنية :	**At the end of this course, the students will be able to:** b1 Analyze problems in the field of biochemistry and by measurement deduction from them. b3- evaluated the metabolic disorders of Carbohydrates, protein & lipid b6- Apply scientific research in experimental design to choose a project in this field.
جـ - المهارات المهنية الخاصة بالمقرر :	**At the end of this course, the students will be able to:** c1- Evaluate basic skills ,techniques, and tools considering the scientific ethics. c2- Design of scientific plan, design, conduct and report on the investigated data with limited guide.
د – المهارات العامة :	**At the end of this course, the students will be able to:** d2-Use information technology to promote the development of professional practice in the areas of biochemistry. d6. Work in teams and groups and communicate with others positively.
٤- محتوي المقرر :	.1 Carbohydrates & lipids chemistry& function 2 .Introduction to metabolism 3 .Oxidative phosphorylation 4 .Glycolysis 5.Citric acid cycle 6 .Gluconeogenesis 7 .Glycogen metabolism 8. Regulation of glycolysis, citric acid cycle, gluconeogenesis, and glycogen metabolism 9 .Pentose phosphate pathway 10 .Monosaccharides & disaccharides metabolism 11. Glycosaminoglycans & glycoproteins metabolism 12. Integration of metabolism 13. Fatty acids and triglycerides metabolism 14. Cholesterol and steroids biosynthesis

٥- أساليب التعليم	• Lectures • Discussion

• Web-sites recommendations • Seminars	والتعلم
Specify additional hours to argue the difficult points with the less bright students.	٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة
٧- تقويم الطـلاب :	
• Mid-Term exam to assess student understanding and effectiveness of teaching • Written final-term exam to assess the student skills to express thoughtful of the major concepts covered by the studied course • Student semester-work and team work skills • Attendance percent of each student in lectures, oral exam and activites.	أ- الأساليب المستخدمة
• Assessment 1 Mid-term exam 5th week • Assessment 2 Final term exam 12th week	ب- التوقيت
• Mid-Term exam and other activities 40 % • Final-Term exam 60 % • Total 100%	جـ - توزيع الدرجات
٨- قائمة الكتب الدراسية والمراجع :	
Non	أ- مذكرات
Essential Books: Harper,s Physciological Chemistry(Recent edition), Lippincott's Biochemistry and Devlin Text book for Biochemistry with clinical correlations	ب- كتب ملزمة
Recommended books: The available new editions and more advanced books of biochemistry.	جـ - كتب مقترحة
sites Periodicals & Web sites. - The following websites are very useful: http://www.sp.uconn.edu/~terry/229sp03/lectures/catabolism.html http://groups.msn.com/AnatomyPhysiologyTests/metabolism.msnw http://www.ecu.edu/learnchem/gerow/moviepage.htm	د- دوريات علمية أو نشرات ... الخ

أستاذ المقرر: أ.د/ حياة محمد شرادة رئيس مجلس القسم العلمى: أ.د/ وفاء غنيم شوشه

د.منار سليم

نموذج رقم (١١أ)

اسم المقرر :	**Advances in Metabolism of carbohydrates & lipids**
الرمز الكودى :	**143605**

جامعة: حلوان

كلية: العلوم

قسم : الكيمياء

(ا) مصفوفة المعارف و المهارات المستهدفة من البرنامج التعليمى2016-2017

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسة			مهارات ذهنية			مهارات مهنية			مهارات عامة	
		a1	a2	a 3	b1	b 3	b 6	C 1	C 2		D2	D6
1 Carbohydrates & lipids chemistry& function	1-3		×	×		×	×		×			×
2 .Introduction to metabolism	4-6		×	×		×						×
3 .Oxidative phosphorylation	7-8		×	×		×		×			×	×
4 .Glycolysis	9-10	×	×		×				×			×
5.Citric acid cycle	١١	×	×		×						×	×
6 .Gluconeogenesis	١٢						×		×			
7 .Glycogen metabolism	١٣		×	×		×		×				×
8. Regulation of glycolysis, citric acid cycle, gluconeogenesis, and glycogen metabolism	١٣		×	×		×			×		×	×
9 .Pentose phosphate pathway	١٤		×	×		×	×					×

أستاذ المقرر: ..أ.د/ حياة محمد شرادة **رئيس مجلس القسم العلمى: أ.د/ وفاء غنيم شوشه**

د.منار سليم

نموذج رقم (١١أ)

جامعة : ...حلوان.
كلية : ...العلوم.
قسم : ....الكيمياء.

اسم المقرر :	Advances in Metabolism of carbohydrates & lipids
الرمز الكودى :	١٤٣٦٠٥

(ب) مصفوفة ملائمة أساليب التقويم للمعارف و المهارات المستهدفة من المقرر الدراسى

Semester-work	Mid-term	Final written examination	مخرجات التعلم ILOS	
	x	x	a1- Illustrate physical& chemical properties of carbohydrates, classification, nomenclature and metabolism.	المعلومات و المفاهيم
x		x	a2- Outline the ethics of scientific research in the biochemistry fields.	
x		x	a3 Contrast the of new basics of pure science not covered during the undergraduate stage.	
x	x	x	b1 Analyze problems in the field of biochemistry and by measurement deduction from them.	المهارات الذهنية
x			b3- evaluated the metabolic disorders of Carbohydrates, protein & lipid	
x		x	b6- Apply scientific research in experimental design to choose a project in this field.	
	x		c1- Evaluate basic skills ,techniques, and tools considering the scientific ethics.	المهارات المهنية
	x		c2- Design of scientific plan, design, conduct and report on the investigated	

			data with limited guide.	
x		x	d2-Use information technology to promote the development of professional practice in the areas of biochemistry.	المهارات العامة
x	x	x	d6. Work in teams and groups and communicate with others positively.	

أستاذ المقرر: ..أ.د/ حياة محمد شرادة **رئيس مجلس القسم العلمى: أ.د/ وفاء غنيم شوشه**

د.منار سليم

نموذج رقم (١١أ)

جامعة : حلوان.
كلية : العلوم.
قسم : الكيمياء.

اسم المقرر :	Advances in Metabolism of carbohydrates & lipids
الرمز الكودى :	١٤٣٦٠٥

(ج) مصفوفة ملائمة أساليب التعليم و التعلم للمعارف و المهارات المستهدفة من المقرر الدراسى

مخرجات التعلم ILOS		Lectures	Discussion	Web-sites recommendations and Seminars
a1- Illustrate physical& chemical properties of carbohydrates, classification, nomenclature and metabolism.	المعلومات و المفاهيم	x		X
a2- Outline the ethics of scientific research in the biochemistry fields..		x	x	
a3 Contrast the of new basics of pure science not covered during the undergraduate stage.		x	x	
b1 Analyze problems in the field of biochemistry and by measurement deduction from them.	المهارات الذهنية	x	x	x
b3- evaluated the metabolic disorders of Carbohydrates, protein & lipid		x	x	
b6- Apply scientific research in experimental design to choose a project in this field.		x	x	
c1- Evaluate basic skills ,techniques, and tools considering the scientific ethics.	المهارات المهنية		x	x
c2- Design of scientific plan, design, conduct and report on the investigated data with limited guide.				x

المهارات العامة	d2-Use information technology to promote the development of professional practice in the areas of biochemistry.	x	x	
	d6. Working in teams and groups and communicate with others positively.	x		x

أستاذ المقرر: ..أ.د/ حياة محمد شرادة **رئيس مجلس القسم العلمى: أ.د/ وفاء غنيم شوشه**

د.منار سليم

نموذج رقم (١٢)

جامعة حلوان

كلية / العلوم

قسم : الكيمياء

توصيف مقرر دراسي

١- بيانات المقرر		
الرمز الكودي: **143606**	**اسم المقرر :** **Enzymes**	**الفرقة / المستوي:** **M.Sc**
التخصص: **Biochemistry**	**عدد الوحدات الدراسية : نظري (3)**	
٢- هدف المقرر :	1- Deal with the fundamentals of enzyme action and enzyme kinetics. 2- understand how theoretical information can be applied practically. 3- Help the post graduate students to have an experience about the way a project in this field can be prepared and discussed	
٣- المستهدف من تدريس المقرر :		
أ- المعلومات والمفاهيم :	**At the end of the course the student should be able to:** a1. Identify fundamentals of key characteristics of an enzyme, enzyme nomenclature& classification, function of enzymes as catalysts, enzyme active sites, catalytic site of enzyme, lock & key model, induced- fit model of enzyme action. a2. Describe basic concepts of thermodynamics as they apply to chemical reactions, significance of the enzyme-substrate complex in enzyme catalysis and the effects of substrate concentration on reaction velocity.also how proteolytic activation of chymotrypsinogen leads to the formation of an active enzyme. a3. Relate the latest findings of scientific research in the field of enzymes.	
ب- المهارات	**At the end of the course the student should be able to:** b1. Distinguish between reversible (competitive and noncompetitive) and irreversible enzyme inhibition.	

b2. Test assumptions using the appropriate experimental design and statistical analysis of the data to solve problems in field of enzymes. b3. Survey scientific planning for the development of performance professional which can access to the highest quality.	الذهنية :
At the end of the course the student should be able to: c1- Apply the basic professional skills for the practice of scientific research in the field of enzymes which plays a key role in technological development. c2- Design a proposal research for mien grant funding the appropriate research.	جـ - المهارات المهنية الخاصة بالمقرر
At the end of the course the student should be able to: d1- Deal with problem identification and solving d2-Enhace the ability of group work. d3- Manage time efficiently.	**د – المهارات** **العامة :**
1- Introduction, nomenclature, classification 2- Properties of enzymes, chemistry of the active site 3- Factors affecting enzye activity 4- kinetic equations 5- Energy of activation 6- catalysis and enzymatic catalysis 7- introduction to enzyme kinetics 8- Determination of K_m and V_{max} 9- inhibition of enzyme catalyzed reacyion 10- kinetics of reversible reactions 11- kinetics of reactions reactions 12- Effects of temperature and pH on the rates of enzymatic reactions.	**٤- محتوي المقرر :**
• Lectures • Seminars	**٥- أساليب التعليم والتعلم**
Specify additional hours to argue the difficult points with the less bright students.	**٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة**
	٧- تقويم الطـلاب :

أ- الأساليب المستخدمة	• Mid-Term exam to assess student understanding and effectiveness of teaching • Written final-term exam to assess the student skills to express thoughtful of the major concepts covered by the studied course • Student semester-work and team work skills • Attendance percent of each student in lectures, oral exam and activites.
ب- التوقيت	• Assessment 1 Mid-term exam 5th week • Assessment 2 Final term exam 12th week
جـ - توزيع الدرجات	• Mid-Term exam and other activities 40 % • Final-Term exam 60 % Total 100%
٨- قائمة الكتب الدراسية والمراجع :	
أ- مذكرات	
ب- كتب ملزمة	Essential books (text books) Food theory and applications. Recommended books Environmental biotechnology Periodicals, Web sites, … *etc* Handbook of Environmental Data
جـ - كتب مقترحة	
د- دوريات علمية أو نشرات ... الخ	Periodicals, Web sites. The following websites are very useful: htt:/www.sp.uconn.edu/~terry/229sp03/lectures/catab0olism.html htt://groups.msn.com/AnatomyPhysiologyTests/metabolism.msnw htt:/www.ecu.edu/learnchem/gerow/moviepage.htm htt:/www.sc.psu.ac.th/Department/PHYSIO/THAI/Anilink.htm

أستاذ المادة :

أ.د/ سوسن احمد عبد الحليم

رئيس مجلس القسم

ا.د. وفاء شوشه

نموذج رقم (١١أ)

مسمى المقرر	Enzymes
كود المقرر	143606

جامعة : حلوان.

كلية : العلوم.

قسم : .الكيمياء.

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسية	المهارات الذهنية	مهارات مهنية	مهارات عامة
Introduction, nomenclature, - classification	1	a1-a	b1-b3		d1, d2
Properties of enzymes, chemistry of the active site	2	a2,	b2	c1	d1, d2
Factors affecting enzye activity	3	a2,	b3	c1, c2	d2
kinetic equations	4	a3	b1	c2	d1, d2
Energy of activation	5	a2	b1, b2	c2	d1
catalysis and enzymatic catalysis	6	a1	b3	c1	d1, d2
introduction to enzyme kinetics	7	a2	b2	c2	d1
Determination of K_m and V_{max}	8	a3	b2	c2	d1
inhibition of enzyme catalyzed reacyion	9	a2	b3	c2	d1
kinetics of reversible reactions	10	a3	b2	c2	d1
kinetics of reactions reactions	11	a2	b2	c2	d1
Effects of temperature and pH on the rates of enzymatic reactions.	12-13	a1	b3	c2	d1

أستاذ المادة :

أ.د/ سوسن احمد عبد الحليم

رئيس مجلس القسم

ا.د. وفاء شوشه

جامعة : ...حلوان.

كلية : ...العلوم..

قسم : ..الكيمياء..

مسمى المقرر	Enzymes
كود المقرر	143606

(ب)مصفوفة تحقق ملائمة أساليب التقويم لمحتوى المقرر

Semester-work	Final written examination	مخرجات التعلم ILOS	
X	X	a1. Identify fundamentals of key characteristics of an enzyme, enzyme nomenclature& classification, function of enzymes as catalysts, enzyme active sites, catalytic site of enzyme, lock & key model, induced- fit model of enzyme action.	المعلومات و المفاهيم
	X	a2. Describe basic concepts of thermodynamics as they apply to chemical reactions, significance of the enzyme-substrate complex in enzyme catalysis and the effects of substrate concentration on reaction velocity.also how proteolytic activation of chymotrypsinogen leads to the formation of an active enzyme.	
X		a3. Relate the latest findings of scientific research in the field of enzymes.	
X	X	b1. Distinguish between reversible (competitive and noncompetitive) and irreversible enzyme inhibition.	المهارات الذهنية
	X	b2. Test assumptions using the appropriate experimental design and statistical analysis of the data to solve problems in field of enzymes.	
X		b3. Survey scientific planning for the development of performance professional which can access to the highest quality.	
	X	c1- Apply the basic professional skills for the practice of scientific research in the field of enzymes which plays a key role in technological development.	المهارات المهنية
		c2- Design a proposal research for mien grant funding the appropriate research.	

X		d1- Deal with problem identification and solving	المهارات العامة
X	X	d2-Enhace the ability of group work.	
X	X	d3- Manage time efficiently.	

أستاذ المقرر **رئيس مجلس القسم العلمى:**

أ.د/ سوسن احمد عبد الحليم **ا.د. وفاء شوشه**

نموذج رقم (١١)

جامعة : ...حلوان.
كلية : ...العلوم..
قسم : ..الكيمياء..

مسمى المقرر	Enzymes
كود المقرر	143606

(ج) مصفوفة تحقق ملائمة أساليب التعليم و التعلم لمحتوى مقرر

Lectures	Seminars	مخرجات التعلم ILOS	
X	X	a1. Identify fundamentals of key characteristics of an enzyme, enzyme nomenclature& classification, function of enzymes as catalysts, enzyme active sites, catalytic site of enzyme, lock & key model, induced- fit model of enzyme action.	المعلومات والمفاهيم
		a2. Describe basic concepts of thermodynamics as they apply to chemical reactions, significance of the enzyme-substrate complex in enzyme catalysis and the effects of substrate concentration on reaction velocity.also how proteolytic activation of chymotrypsinogen leads to the formation of an active enzyme.	
X		a3. Relate the latest findings of scientific research in the field of enzymes.	
X	X	b1. Distinguish between reversible (competitive and noncompetitive) and irreversible enzyme inhibition.	المهارات الذهنية
	X	b2. Test assumptions using the appropriate experimental design and statistical analysis of the data to solve problems in field of enzymes.	
X		b3. Survey scientific planning for the development of performance professional which can access to the highest quality.	
X		c1- Apply the basic professional skills for the practice of scientific research in the field of enzymes which plays a key role in technological development.	المهارات المهنية
	X	c2- Design a proposal research for mien grant funding the appropriate research.	

المهارات العامة	d1- Deal with problem identification and solving		X
	d2-Enhace the ability of group work.	X	X
	d3- Manage time efficiently.	X	X

أستاذ المقرر **رئيس مجلس القسم العلمى:**

أ.د/ سوسن احمد عبد الحليم **ا.د. وفاء شوشه**

نموذج رقم (١٢)

جامعة حلوان

كلية :العلوم

قسم : الكيمياء

توصيف مقرر دراسي

١- بيانات المقرر		
الرمز الكودي: 143611	اسم المقرر : Advance Nutritional Biochemistry	الفرقة / المستوي:pre-master students
التخصص: Biochemistry	عدد الوحدات الدراسية : نظري (3)	

٢- هدف المقرر :	1- Provide students with the modern knowledge and skills of biochemistry and physiological effects of neutrients . 2- Enable students to update and develop their expertise through acquiring knowledge and professional skills in nutritional biochemistry. 3- Help the post graduate students to have on experience about the way a project in this field can be prepared and discussed.
٣- المستهدف من تدريس المقرر :	
أ- المعلومات والمفاهيم	**At the end of the course the student should be able to:** a1- Identify fundamentals and scientific aspects of nutrition. a2- Relate the latest findings of scientific research in the field of nutritional biochemistry. a3- Describe the correlation between diet and health.
ب- المهارات الذهنية :	**At the end of the course the student should be able to:** b1- Analyze problems and evaluate the information in the field of nutritional biochemistry to resolve them. b2- Plan original management research program addresses the problem of research related to solve some nutritional problems like obesity and others from a point of view of a biochemist.

At the end of the course the student should be able to: c1- Apply the basic professional skills for the practice of scientific research in the field of nutritional biochemistry which plays a key role in technological development. c2- Design a proposal research for mien grant funding the appropriate research.	**جـ - المهارات المهنية الخاصة بالمقرر**
At the end of the course the student should be able to: d1- Deal with problem identification and solving d2-Enhace the ability of group work. d3- Communicate effectively and clearly through talks, publications written and visual (view poster).	**د – المهارات العامة :**
1- Introduction, food choice and human health 2- dietary guidelines 3- the nutrients (carbohydrates, lipids, proteins, vitamins, minerals) 4- Antioxidants 5- dietary fibers 6-Energy metabolism 7- function of GI tract in digestion and absorption of fuels 8-water and electrolyte balance	**٤- محتوي المقرر :**
• Lectures • Web-sites recommendations • Seminars	**٥- أساليب التعليم والتعلم**
Specify additional hours to argue the difficult points with the less bright students.	**٦- أساليب التعليم والتعلم للطلاب ذوى القدرات المحدودة**
٧- تقويم الطـلاب :	
1. Mid-Term exam to assess student understanding and effectiveness of teaching 2. Written final-term exam to assess the student skills to express thoughtful of the major concepts covered by the studied course 3. Student semester-work and team work skills 4. Attendance percent of each student in lectures, oral exam and activities.	**أ- الأساليب المستخدمة**

ب- التوقيت	• Assessment 1 Mid-term exam 5th week • Assessment 2 Final term exam 14th week
جـ - توزيع الدرجات	• Mid-Term exam and other activities 40 % • Final-Term exam 60 % Total 100 %
٨- قائمة الكتب الدراسية والمراجع :	
أ- مذكرات	
ب- كتب ملزمة	Essential books (text books) Food theory and applications. Recommended books Environmental biotechnology Periodicals, Web sites, … *etc* Handbook of Environmental Data
جـ - كتب مقترحة	
د- دوريات علمية أو نشرات ... الخ	Periodicals, Web sites. The following websites are very useful: htt:/www.sp.uconn.edu/~terry/229sp03/lectures/catab0olism.ml htt://groups.msn.com/AnatomyPhysiologyTests/metabolism.nw htt:/www.ecu.edu/learnchem/gerow/moviepage.htm htt:/www.sc.psu.ac.th/Department/PHYSIO/THAI/Anilink.htm

أستاذ المادة : أ.د/ سوسن احمد عبد الحليم رئيس مجلس القسم العلمي :أد / وفاء شوشه

نموذج رقم (١١أ)

جامعة : حلوان.

كلية: العلوم.

قسم : الكيمياء

مسمى المقرر	Nutritional Biochemistry
كود المقرر	1436011

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسية	المهارات الذهنية	مهارات مهنية	مهارات عامة
Introduction, food choice and human health	1	a1	b2		d1, d2
dietary guidelines	2-3	a2	b1, b2	c1, c2	d1
the nutrients (carbohydrates, lipids, proteins, vitamins, minerals)	4-5	a3, a2	b1, b2	c1	d1, d2
Antioxidants	6-7	a1	b1	c2	d3, d2
dietary fibers	8	a2	b2	c1, c2	d1, d2
Energy metabolism	9	a1, a3	b1, b2	c2	d3, d2
function of GI tract in digestion and absorption of feuls	10-11	a2	b2	c1, c2	d1, d2
water and electrolyte balance	12-13	a1, a2	b1, b2	c1, c2	d3, d2

أستاذ المادة : أ.د/ سوسن احمد عبد الحليم

رئيس مجلس القسم العلمي :أد / وفاء شوشه

نموذج رقم (١١)

جامعة : ...حلوان.
كلية : ...العلوم..
قسم : ..الكيمياء..

مسمى المقرر	Nutritional Biochemistry
كود المقرر	١٤٣٦٠١١

(ب)مصفوفة تحقق ملائمة أساليب التقويم لمحتوى المقرر

	مخرجات التعلم ILOS	Final written examination	Semester-work
المعلومات و المفاهيم	a1- Identify fundamentals and scientific aspects of nutrition	X	X
	a2- Relate the latest findings of scientific research in the field of nutritional biochemistry.	X	
	a3- Describe the correlation between diet and health.	X	
المهارات الذهنية	b1- Analyze problems and evaluate the information in the field of nutritional biochemistry to resolve them.	X	X
	b2- Plan original management research program addresses the problem of research related to solve some nutritional problems like obesity and others from a point of view of a biochemist.	X	
المهارات المهنية	c1- Apply the basic professional skills for the practice of scientific research in the field of nutritional biochemistry which plays a key role in technological development.	X	
	c2- Design a proposal research for mien grant funding the appropriate research.		X
المهارات العامة	d1- deal with problem identification and solving		X
	d2-enhace the ability of group work.	X	X
	d3- Communicate effectively and clearly through talks, publications written and visual (view poster).		X

أستاذ المادة : أ.د/ سوسن احمد عبد الحليم
رئيس مجلس القسم العلمي :أد / وفاء شوشه

نموذج رقم (١١)

مسمى المقرر	Nutritional Biochemistry
كود المقرر	1436011

جامعة : حلوان.
كلية : العلوم..
قسم : الكيمياء..

(ج) مصفوفة تحقق ملائمة أساليب التعليم و التعلم لمحتوى مقرر

Lectures	Seminars	مخرجات التعلم ILOS	
X		a1- Identify fundamentals and scientific aspects of nutrition.	المعلومات والمفاهيم
X		a2- Relate the latest findings of scientific research in the field of nutritional biochemistry.	
X		a3- Describe the correlation between diet and health.	
X	X	b1- Analyze problems and evaluate the information in the field of nutritional biochemistry to resolve them.	المهارات الذهنية
	X	b2- Plan original management research program addresses the problem of research related to solve some nutritional problems like obesity and others from a point of view of a biochemist.	
	X	c1- Apply the basic professional skills for the practice of scientific research in the field of nutritional biochemistry which plays a key role in technological development.	المهارات المهنية
	X	c2- Design a proposal research for mien grant funding the appropriate research.	
X		d1- deal with problem identification and solving	المهارات العامة
X	X	d2-enhace the ability of group work.	
	X	d3- Communicate effectively and clearly through talks, publications written and visual (view poster).	

أستاذ المقرر
أ.د/ سوسن احمد عبد الحليم

رئيس مجلس القسم العلمى:
ا.د. وفاء شوشه

نموذج رقم (١٢)

جامعة: حلوان

كلية: العلوم

قسم : الكيمياء

توصيف مقرر دراسى

١- بيانات المقرر		
الرمز الكودى: E1436011	**اسم المقرر : Advanced Biotechnology (Elective)**	**الفرقة / المستوى : Premaster studies for Biochemistry , 2nd Semester**
التخصص :الكيمياء الحيوى	**عدد الوحدات الدراسية : نظرى** 3	

٢- هدف المقرر :	1- This course as a non-conventional course is designed to acquaint the students of the fundamentals and general terminologies of Biotechnology, nanotechnology and bionanotechnology as interdisciplinary disciplines of biochemistry with endless number of applications in natural and life sciences. 2- Enable students to update and develop their expertise through acquiring knowledge and professional skills in advanced biotechnology.
٣- المستهدف من تدريس المقرر :	
أ- المعلومات و المفاهيم :	**At the end of the course the student should be able to:** a1. Review with the students the history and basic concepts/definitions of biotechnology, its different types (green, white, blue) and their applications and their positive environmental, economic and societal outcomes. a2. Identify the main discrepancies between the applications of different types of biotechnology a3. Relate the latest findings of scientific research in the field of biotechnology.
ب – المهارات الذهنية :	**At the end of the course the student should be able to:** b1. Judge the risk factors present in the molecular bioltechnology and/or bionanotechnology lab. whether they occupational, environmental…etc b2. Appraise how to keep the molecular biotechnology lab clean and sterile.
جـ – المهارات المهنية	**At the end of the course the student should be able to:** c1. Analyse experimentally biotechnological and nanobiotechnological derived data and the treatment of errors.

c2. Assure safety in the laboratory/work environment against foreseen toxicants (like archiving the material safety data sheets for all the chemicals/materials used).	الخاصة بالمقرر :
At the end of the course the student should be able to: d1. Learn by a combination of lectures, textbooks, and laboratory illustrations and/or videos for the related procedures/techniques involved in the course. d2. Value and experience time planning; working towards deadlines. d3. Show capability of time-management and self study skills.	د – المهارات الهامة :
1. The history and basic concepts/definitions of biotechnology, its different types (green, white, blue) and their applications and their positive environmental, economic and societal outcomes. 2. What is nanotechnology and what are its pros and cons? And what is the characterization of nanoparticles (physical, optical, and diffusion properties). 3. What is the definition of Bionanotechnology and what are its biomedical applications? 4. The various applications, advantages and the mechanism(s) of combining the regenerative stem cells with the nanoparticle technology. 5. What is "Drug delivery" and what are its various routes? And also briefly discuss the use of liposomes as drug carriers that enhance drug delivery, the liposomes classification, and mechanism of action, preparation, advantages, disadvantages and its applications; other examples of drug carriers. 6. The levels of drug targeting and list some applications of drug targeting? 7. Introduction to bioinformatics and microarray technologies. 8. What are the fundamentals of "Nanotoxicology"?	**٤- محتوى المقرر :**
• Lectures • Web-sites recommendations • Self learning by preparing reports and seminars (presentations).	**٥- اساليب التعليم و التعلم**
Organize small workshops with the students who finds a difficulty in keeping up with the rest and aid them with more explanation, and other aiding teaching materials	**٦- أساليب التعليم و التعلم للطلاب ذوى القدرات المحدودة**
٧- تقويم الطلاب :	
• Written final-term exam to assess the student skills to express thoughtful of the major concepts covered by the studied course • Student semester-work ndance percent of each student in lectures, report to assess student accomplihment and self-learning and seminars to assess skills of presentation and discussion).	أ- الأساليب المستخدمة

Method	Weeks	
Semester activities (reports and presentations)	7-14	ب – التوقيت
Final-term written exam	Managed by administrations	

جـ – توزيع الدرجات	**Assessment** / **Weight of Assessment** Semester activities (reports and oral presentations) — 40 % Final-term written exam — 60 % Total — 100 %	
٨ـ قائمة الكتب الدراسية و المراجع :		
أ- مذكرات	Not available	
ب- كتب ملزمة	Updated textbooks used in the formulation of the course: 1.An introduction to Biotechnology 2004 2. Drug Delivery System 2014 3. Nanobiotechnology protocols 2013 4. Targeted Drug Strategies for Cancer2011	
جـ- كتب مقترحة	Stem-cell nanoengineering 2015 And any other recommended related textbooks	
د- دوريات علمية أو نشرات ... إلخ		

أستاذ المادة : ا. د /السيد محمد السيد مهدى **رئيس مجلس القسم العلمى : ا. د / وفاء غنيم شوشه**

نموذج رقم (١١أ)

كلية : العلوم.

قسم : الكيمياء

مسمى المقرر	Advanced Biotechnology
كود المقرر	E1436011

(أ) مصفوفة المعارف و المهارات المستهدفة من المقرر الدراسى

المحتويات للمقرر	أسبوع الدراسة	المعارف الرئيسية	المهارات الذهنية	مهارات مهنية	مهارات عامة
1. The history and basic concepts/definitions of biotechnology, its different types (green, white, blue) and their applications and their positive environmental, economic and societal outcomes.	1,2	a1, a2	b1, b2	c2	d1
2. What is nanotecchnology and what are its pros and cons? And what is the characterization of nanoparticles (physical, optical, and diffusion properties).	3,4	a3	b1, b2	c2	d1,d2 and d3
3. What is the definition of Bionanotechnology and what are its biomedical applications?	5,6	a4	b1, b2	c2	d1,d2 and d3
4. The various applications, advantages and the mechanism(s) of combining the regenerative stem cells with the nanoparticle technology.	7,8	a2	b1, b2	c1-c2	d1,d2 and d3
5. What is "Drug delivery" and what are its various routes? And also briefly discuss the use of liposomes as drug carriers that enhance drug delivery, the liposomes classification, and mechanism of action, preparation, advantages, disadvantages and its applications; other examples of drug carriers.	9, 10	a3	b1, b2	c2	d1,d2 and d3
6. The levels of drug targeting and list some applications of drug targeting?	11,12	a1	b1, b2	c2	d1,d2 and d3
7. Introduction to bioinformatics and microarray technologies.	13	a3	b1, b2	c2	d1,d2

					and d3
8. What are the fundamentals of "Nanotoxicology"?	14	a2	b1, b2	c2	d1,d2 and d3

استاذ المادة : ا. د /السيد محمد السيد مهدى **رئيس مجلس القسم العلمى : ا. د / وفاء غنيم شوشه**

جامعة : ...حلوان.
كلية : ...العلوم..
قسم : ..الكيمياء..

مسمى المقرر	Advanced Biotechnology
كود المقرر	E1436011

(ب)مصفوفة تحقق ملائمة أساليب التقويم لمحتوى المقرر

	مخرجات التعلم ILOS	Final written examination	Semester-work
المعلومات والمفاهيم	a1. Review with the students the history and basic concepts/definitions of biotechnology, its different types (green, white, blue) and their applications and their positive environmental, economic and societal outcomes.	X	X
	a2. Identify the main discrepancies between the applications of different types of biotechnology.	X	
	a3. Relate the latest findings of scientific research in the field of biotechnology.	X	
المهارات الذهنية	b1. Judge the risk factors present in the molecular bioltechnology and/or bionanotechnology lab. whether they occupational, environmental…etc	X	X
	b2. Appraise how to keep the molecular biotechnology lab clean and sterile.	X	
المهارات المهنية	c1. Analyse experimentally biotechnological and nanobiotechnological derived data and the treatment of errors.	X	
	c2. Assure safety in the laboratory/work environment against foreseen toxicants (like archiving the material safety data sheets for all the chemicals/materials used).		X
المهارات العامة	d1. Learn by a combination of lectures, textbooks, and laboratory illustrations and/or videos for the related procedures/techniques involved in the course.		X
	d2. Value and experience time planning; working towards deadlines.		X
	d3. Show capability of time-management and self study skills.	X	X

أستاذ المادة : ا. د /السيد محمد السيد مهدى
رئيس مجلس القسم العلمى : ا. د / وفاء غنيم شوشه

نموذج رقم (١١)

جامعة : ...حلوان.
كلية : ...العلوم..
قسم : ..الكيمياء..

مسمى المقرر	Advanced Biotechnology
كود المقرر	E1436011

(ج) مصفوفة تحقق ملائمة أساليب التعليم و التعلم لمحتوى مقرر

	Self-learning	Lectures	مخرجات التعلم ILOS
المعلومات والمفاهيم		X	a1. Review with the students the history and basic concepts/definitions of biotechnology, its different types (green, white, blue) and their applications and their positive environmental, economic and societal outcomes.
		X	a2. Identify the main discrepancies between the applications of different types of biotechnology
		X	a3. Relate the latest findings of scientific research in the field of biotechnology.
المهارات الذهنية	X	X	b1. Judge the risk factors present in the molecular bioltechnology and/or bionanotechnology lab. whether they occupational, environmental…etc
	X		b2. Appraise how to keep the molecular biotechnology lab clean and sterile.
المهارات المهنية	X		c1. Analyse experimentally biotechnological and nanobiotechnological derived data and the treatment of errors.
		X	c2. Assure safety in the laboratory/work environment against foreseen toxicants (like archiving the material safety data sheets for all the chemicals/materials used).
المهارات العامة	X	X	d1. Learn by a combination of lectures, textbooks, and laboratory illustrations and/or videos for the related procedures/techniques involved in the course.
		X	d2. Value and experience time planning; working towards deadlines.
	X		d3. Show capability of time-management and self study skills.

أستاذ المادة : ا. د /السيد محمد السيد مهدى
رئيس مجلس القسم العلمى : ا. د / وفاء غنيم شوشه