مقارنة ما يقدمه البرنامج من نتائج تعليمية مستهدفة مع المعايير المرجعية لبرنامج الدكتوراة في الكيمياء الحيوية الطبية و البيولوجية الجزيئية

أ ـ المعرفة والفهم:

المقررات التى تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة Michigan	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الدكتوراة في الكيمياء الحيوية الطبية و البيولوجية الجزيئية)
Genetics	AI (1-10)	- Molecular genetics	1. The theories, concepts and modern knowledge in the field of specialization and other related field
Special course in Medical Biochemistry & Molecular Biology	AI 12	-Signal transduction	
	A11,A14		
Medical Biochemistry & Molecular Biology (advanced course)	AII 1-4	-Protein Structure and Function	
	AII 5	-Enzyme Mechanisms -Ligand Binding, Enzyme Kinetics	
	AII6- 12 AII 21	-Advanced biochemistry I Macromolecular Structure and Function -Advanced biochemistry II Cellular processes	
	AII 13- 18	-Molecular Biology -Post-transcriptional Gene Regulation -Mechanisms of Eukaryotic Gene Expression -Chromosome structure and function	
	AII 19	-Endocrinology	
	AII 20, 23	- Intercellular trafficking -Advanced Topics in Protein Trafficking and Localization	
Elective courses	AII 25- 27		

Special course in Medical Biochemistry & Molecular Biology Medical Biochemistry & Molecular Biology (advanced course) Thesis	AI-13 AII 16 AII 28	Introduction to Biochemical Research Techniques: Laboratory	2. The basics, methodologies, ethics of scientific research and its versatile tools
Thesis	AII 28		3. The moral and legal ethics of the professional practice in the area of specialization
Elective course (Organ system function assessment)	AII 27		4. The concepts and principles of quality of the professional practice in the area of specialization
Thesis	AII 28		5. The knowledge on the effects of professional practice on the environment and ways of development and maintenance of the environment

ب ـ القدرات الذهنية :

المقررات التى تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة Michigan	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الدكتوراة في الكيمياء الحيوية الطبية و البيولوجية الجزيئية)
Medical Biochemistry & Molecular Biology (advanced course) Thesis	B1, B2	Introduction to Biochemical Research Techniques: Laboratory Biomedical Analytic chemistry	1) Analyze and evaluate information in the field of specialization and make full use of such information to solve problems
Medical Biochemistry & Molecular Biology (advanced course)	B3	Introduction to Biochemical Research Techniques: Laboratory Biomedical Analytic chemistry	2) Solve specific problems on the basis of limited and contradictory information
Medical Biochemistry & Molecular Biology (advanced course) Thesis	B6, B7	Introduction to Biochemical Research Techniques: Laboratory	3) Carry out a research studies to add new information to the knowledge
Medical Biochemistry & Molecular Biology	B5, B6	Introduction to Biochemical Research	4) Write scientific papers

(advanced course) Thesis		Techniques: Laboratory	
Medical Biochemistry & Molecular Biology (advanced course) Thesis	B8	Introduction to Biochemical Research Techniques: Laboratory	5) Assess and analyze risks in the field of specialization
Medical Biochemistry & Molecular Biology (advanced course) Thesis	B8	Introduction to Biochemical Research Techniques: Laboratory	6) Plan to improve performance in the field of specialization
Medical Biochemistry & Molecular Biology (advanced course) Thesis	B7	Introduction to Biochemical Research Techniques: Laboratory Biomedical Analytic chemistry	7) Make good decisions in different professional aspects
Medical Biochemistry & Molecular Biology (advanced course) Thesis	B6, B7	Introduction to Biochemical Research Techniques: Laboratory	8) Have innovation/creativity
Medical Biochemistry & Molecular Biology (advanced course) Thesis	B7	Introduction to Biochemical Research Techniques: Laboratory Biomedical Analytic chemistry	9) Discuss and negotiate in high level of confidence based upon proofs and evidences

ج ـ المهارات العملية:

المقررات التى تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة **ILOs**	(ARS) **Benchmark** المعايير الأكاديمية لجامعة **Michigan**	**(NARS)** المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الدكتوراة في الكيمياء الحيوية الطبية و البيولوجية الجزيئية)
Medical Biochemistry & Molecular Biology (advanced course) Thesis	C1, C2, C3, C4, C5	Introduction to Biochemical Research Techniques: Laboratory Laboratory in Cell and Molecular Biology Structure and Reactivity: Laboratory Chemical analysis: Laboratory	1) Apply modern and principle professional skills in the area of specialization
			2) Write and evaluate technical reports

Medical Biochemistry & Molecular Biology (advanced course) Thesis	C1, C2, C3, C5, C6	Introduction to Biochemical Research Techniques: Laboratory Laboratory in Cell and Molecular Biology Structure and Reactivity: Laboratory Chemical analysis: Laboratory Chemical analysis	3) Adopt assessment methods and tools existing in the area of specialization.
Medical Biochemistry & Molecular Biology (advanced course) Thesis	C1, C2, C3, C6	Introduction to Biochemical Research Techniques: Laboratory Laboratory in Cell and Molecular Biology Structure and Reactivity: Laboratory Chemical analysis: Laboratory	4) Use of the appropriate technological means to serve the professional practice.
			5) Plan to improve the performance of the professional practice and development of the performance of others

د- مهارات الاتصال:

المقررات التى تحقق المعايير الأكاديمية للبرامج	مخرجات التعلم المستهدفة ILOs	(ARS) Benchmark المعايير الأكاديمية لجامعة Michigan	(NARS) المعايير القومية الأكاديمية القياسية العامة لبرامج قطاع الدراسات العليا (درجة الدكتوراة في الكيمياء الحيوية الطبية و البيولوجية الجزيئية
Medical Biochemistry & Molecular Biology (advanced course) Thesis	D6	Introduction to Biochemical Research Techniques: Laboratory	1) Communicate effectively in different aspects
Medical Biochemistry & Molecular Biology (advanced course) Thesis	D3	Introduction to Biochemical Research Techniques: Laboratory	2) Demonstrate efficient IT capabilities in such a way that serves in the development of the professional practice
Medical Biochemistry & Molecular Biology (advanced course)	D1	Introduction to Biochemical Research Techniques: Laboratory	3) Manage the scientific meetings and manage time

Thesis		Biomedical Analytic chemistry	
Medical Biochemistry & Molecular Biology (advanced course) Thesis	D4	Introduction to Biochemical Research Techniques: Laboratory Biomedical Analytic chemistry	4) Adopt self-assessment and Adopt life-long learning
Medical Biochemistry & Molecular Biology (advanced course) Thesis	D2	Introduction to Biochemical Research Techniques: Laboratory	5) Use different resources for information and knowledge
Medical Biochemistry & Molecular Biology (advanced course) Thesis	D5	Introduction to Biochemical Research Techniques: Laboratory Biomedical Analytic chemistry	6) Collaborate effectively within multidisciplinary team and lead team works
Medical Biochemistry & Molecular Biology (advanced course) Thesis	D1	Introduction to Biochemical Research Techniques: Laboratory	7) Demonstrate a high level of competence in the management of time and scientific meetings