

**Umm Al-Qura University**

**Faculty of Dentistry**

**Vice Deanship of Academic Development & Community Service**

وحدة تطوير المناهج

**Curriculum Development Unit**

**جامعــة أم القــرى**

**كلية طب الأسنان**

**وكالة الكلية للتطوير الأكاديمي وخدمة المجتمع**

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation & Assessment**

**Course Specifications**

**(CS)**

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| **Course Name** | Research Methods In Oral Biology |
| **Course Code** | 190152003 |
| **Academic Level** | 5th Level |
| **Semester** | 2nd  |
| **Study Plan No** | 33 |
| **Department** | Basic & Clinical Oral Science |
| **Division** | Basic Medical Science |
| **Academic Year** | 2018-2019 AD – 1439 -1440 AH |
| **Contact hours** | Theoretical | 1 / week |
| Practical | 2 / week |
| Clinical | Non / week |
| **Total Contact Hrs** | 3 / week |
| **Total Credit Hrs** | 2 |

 UQU-DENT:F0401-01/02

**Course Specifications**

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| Institution: Umm Al Qura University   |
| College/Department: College of Dentistry, Department of Basic and Clinical Oral Sciences  |

**A. Course Identification and General Information**

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| 1. Course title: Research Methods in Oral Biology, Code: 190152003 |
| 2. Credit hours: 2 Credit hours |
| 3. Program(s) in which the course is offered. Bachelor Degree of Dental Medicine and Surgery (B.D.S.)             |
| 4. Name of faculty member responsible for the courseDr. Abderahman Youssef  |
| 5. Level/year at which this course is offered: Fifth year / second semester |
| 6. Pre-requisites for this course: successful complete of the fourth year |
| 7. Co-requisites for this course: All courses are taught simultaneously in the same semester. These courses include basic research methods, pediatric dentistry, oral surgery I, removable, prosthodontics, comprehensive care clinic I  |
| 8. Location: main campus |
| 9. Mode of Instruction (mark all that apply)Yes a. Traditional classroom What percentage?  b. Blended (traditional and online) Yes What percentage? c. e-learning What percentage? d. Correspondence What percentage? e. Other Yes What percentage? 1. Traditional classroom and e-learning: 35%

 e. Other: practical sessions and logbook: 60%c. e-learning: Critical appraisal of published research **(**assignment): 5% |

**B Objectives**

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| 1. What is the main purpose for this course?The aim of this course is to introduce students to basic research methodologies related to oral biological concepts, integrating basic scientific concepts to the dental practice. Students will develop competencies to basic laboratory protocols and procedures. |
| 2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content because of new research in the field)1. Apply for funding to Illustrate experimental skills and protocols.
2. Establish a proper teaching research lab that has all facilities to conduct the basic research methods
3. Updating the knowledge in basic and clinical science as the fields’ progress.
4. Assignment will include critical appraisal of research articles

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**C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)**

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| 1. Topics to be Covered  |
| **List of Topics** | **No. of****Weeks** | **Contact Hours** |
| 1. **Principles and applications of Immunoassays**
 | 2 | 6 |
| 1. **Immunohistochemistry**
 | 1 | 3 |
| 1. **Basic techniques for protein analysis and western blotting**
 | 2 | 6 |
| 1. **Principles of Microbiology Testing**
 | 1 | 3 |
| 1. **Principles of dental material testing**
 | 2 | 6 |
| 1. **DNA extraction and PCR**
 | 1 | 3 |
| 1. **Assignment and Student presentation**
 | 2 | 6 |
| 1. **Revision**
 | 2 | 6 |
|  **Total**  | 13 | 39 |

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| 2. Course components (total contact hours and credits per semester):  |
|  | Lecture | Tutorial | Laboratory | Practical | Other: | Total |
| ContactHours | 13h |  | 26h |  |  | 39 |
| Credit | 1 |  | 1 |  |  | 2 Credits |

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| 3. Additional private study/learning hours expected for students per week.  two hour/week |

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| 4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy |

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|  | **NQF Learning Domains** **And Course Learning Outcomes** | **Course Teaching****Strategies** | **Course Assessment****Methods** |
| **1.0** | **Knowledge** |
| 1.1 | By the end of this module, the student should have the ability to:Understand the basics research techniques in immunoassays, immunohistochemistry, molecular biology, bacterial and cell cultures and testing dental materials. | * Interactive lectures
* E-learning
 | * MCQs
* Short essay
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| **2.0** | **Cognitive Skills** |
| 2.1 | Understand the bases of experimental methods and correlate the results of conducted experiments to the clinical situations. | Interactive lecturesPractical sessions | * MCQs
* Short essay
 |
| **3.0** | **Interpersonal Skills & Responsibility** |
| 3.1 | * Discusspublished articles and demonstrate proper preparation, presentation skills and work individually and with small or large group
 | Assignments  | * Assessment of the assignment presentation using rubric
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| **4.0** | **Communication, Information Technology, Numerical** |
| 4.1 | Gather authorized and reliable medical information from E- textbooks and medical web sites and choose the appropriate key words that suit the searching material.  | Assignments | * Assessment of the assignment presentation using rubric
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| **5.0** | **Psychomotor** |
| 5.1 | * Perform basic research techniques in microbiology and immunology
 | Practical sessions according to the funding availability | * Logbook for practical sessions
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| 5. Schedule of Assessment Tasks for Students During the Semester |
|  | Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.) | Week Due | Proportion of Total Assessment |
| 2 | Continuous Evaluation: Practical requirements (Logbook), assignments. | Every week | 20% |
| 3 | Quiz | Week 6 | 5% |
| 4 | Mid semester written examination(MCQ’s) | Mid semester | 10% |
|  | Mid semester written examination(OSPE) | Mid semester | 10% |
|  | Assignment and Student presentation | Week 11 | 5 % |
|  | Final semester written examination (objective question) | The end of semester  | 20% |
| 5 | Final semester practical examination (OSPE’s) | The end of semester | 30% |

**D. Student Academic Counseling and Support**

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| 1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)Staff members of this course are available for individual student counseling and advice. An average of 6 hours/week is allocated for each staff member teaching the course. The schedule is arranged in accordance to the faculty time table and is announced to all students. |

**E. Learning Resources**

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| 1. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
* Antonio Nancy: Ten Cate oral histology, development and structure and function, 7th ed. Mosby Co., St Louis, 2007.
* Mitry RR and Hughes RD: Human Cell Culture Protocols, 3rd ed. Humana press, 2011.
* Weaver R F: Molecular Biology, 5th ed. McGraw-Hill Science, 2011.
* Bagg J, Macfarlane TW, Poxton IR, Smith AJ: Essentials of microbiology for dental students, 2nd ed. Oxford. 2005.
* Berkovitz BKB, Maxham B J and Holland G R: Berkovitz oral anatomy, histology and embryology, 4th ed. Mosby Elsever, 2009.
* Freshney R I: Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications, Wiley-Blackwell, 6th ed., 2010.
* Seymour G J , Cullinan M P , Heng N C K :Oral Biology: Molecular Techniques and Applications (Methods in Molecular Biology),1st ed. Humana press, 2010.
* Powers JM and Sakaguchi RL: “Craig’s Restorative Dental Materials” 12th ed., Mosby, Elsevier, 2011
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| 1. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
* [file:///E:/Users/Abdel-Rahman%20Youssef/Downloads/a-basic-pcr-protocol.pdf](file:///E%3A/Users/Abdel-Rahman%20Youssef/Downloads/a-basic-pcr-protocol.pdf)
* GIBCO life technology. 2014. The Gibco® Cell Culture Basics handbook. Thermo Fisher Scientific Inc available at <http://www.vanderbilt.edu/viibre/CellCultureBasicsEU.pdf>
* Berkeley library web, University of California. 2014. Molecular and Cell Biology Resources. available at <http://www.lib.berkeley.edu/BIOS/subject.html>
* Rothamsted research. 1999 - 2010 The Molecular Biology Notebook Online. A Beginners' Guide to Molecular Biology available at <http://www.rothamsted.ac.uk/notebook/>
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| 5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. |

**F. Facilities Required**

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| Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)* Audio -visual system
* Cell culture lab
* Microbiology lab
* Thermal cycler
* ELISA reader
* Materials and chemicals to carry out the required experiments
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| 1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)a**. Classrooms:**Each teaching classroom in the faculty is large enough to accommodate 50 students at one time & it includes enough number of comfortable seats arranged in rows with spaces between them. These classrooms are supplied with audiovisual equipment, data show, a large screen, screen pointers & other equipment needed for the PowerPoint presentation of lectures.b. **Basic Teaching Research Lab**Lab must be equipped with basic cell culture, immuno-histochemistry, microbiology, cytochemistry, and molecular biology and protein analysis equipment.  |

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| 2. Computing resources (AV, data show, Smart Board, software, etc.)All students can use computer with internet access in a comfortable place. This will help the students with e-learning. |
| 3. Study areas for students to revise their lessons. |

**G Course Evaluation and Improvement Processes**

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| 1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching
* A course evaluation questionnaire is designed to assess the effectiveness of the Course regarding objectives, teaching facilities, instructor, assessment process and resources. It is distributed to all the students at the end of the course, data is analyzed, interpreted and discussed by the course director or committee to issue an improvement plan for any difficulties facing the students.
* Focus group discussion with the students to validate the questionnaire results.
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| 2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor* A course evaluation questionnaire is designed to assess the effectiveness of the course. It is distributed to instructors who participated in teaching the course at the end of the semester; data is analyzed, interpreted and discussed by the course director or committee.
* An annual course report is compiled by the course director or committee in light of the results of students’ performance as well the results of the course evaluation questionnaire by students.
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| 3. Processes for Improvement of Teaching* Workshops for staff development
* Self &student assessment of the teaching methods
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| 4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)BLINDED double checking of the students answers by two evaluators. |
| 5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.The course will be revised annually after its delivery in light of the results of students' performance (students' grades) and the results of the course evaluation questionnaire by both students and teaching staff. The course director or committee will discusse these issues and put an improvement plan for each spotted problem. They will revise the course content and intended learning objectives. Any changes in objectives, teaching strategies or assessment methods should be documented in the course specification of the next year. Major changes should not be considered except after being approved by the curriculum committee. |

**Faculty or Teaching Staff:**

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**Received by:** -------------------------------- **Head of Basic and Clinical Sciences Department**

**Signature:** -------------------------------- **Date:** --------------------------------