

T6. Course Specification (CS) توصيف المقرر

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| Institution | Najran University | Date of Report | Wednesday, 17/05/2017 (21/08/1438) |
| College/Department | College of Applied Medical Sciences/Clinical Laboratory Sciences. | | |

A. Course Identification and General Information

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| 1. Course title and code: General Microbiology MIC 251 | |
| 2. Credit hours 3 (2+1) | |
| 3. Program(s) in which the course is offered. Bachelor of Applied Medical Sciences (If general elective available in many programs indicate this rather than list programs) | |
| 4. Name of faculty member responsible for the course Lectures: Dr. Mohammad AM Nasher. Practicals: Dr. Isam Mohammed AbdulRAHMAN. | |
| 5. Level/year at which this course is offered 4th level | |
| 6. Pre-requisites for this course (if any) ----- | |
| 7. Co-requisites for this course (if any) ----- | |
| 8. Location if not on main campus Main Campus | |
| 9. Mode of Instruction (mark all that apply) | |
| a. Traditional classroom | <input type="checkbox"/> What percentage? <input type="text"/> |
| b. Blended (traditional and online) | <input checked="" type="checkbox"/> Yes What percentage? <input type="text" value="80%"/> |
| c. e-learning | <input checked="" type="checkbox"/> Yes What percentage? <input type="text" value="20%"/> |
| d. Correspondence | <input type="checkbox"/> What percentage? <input type="text"/> |
| f. Other | <input type="checkbox"/> What percentage? <input type="text"/> |
| Comments: | |

B Objectives

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| <p>1. What is the main purpose for this course?</p> <p>- To provide students of Applied Medical Sciences College with a comprehensive and up-to-date guide to General Microbiology including basic scientific knowledge as well as cognitive, psychomotor and interpersonal and numerical skills in the most reliable, easy, attractive and illustrated manner.</p> |
| <p>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 as a result of new research in the field)</p> <p>- Continuous updating of the information, knowledge and skills included in the course through continuous search for the new knowledge and skills available in recent publications (books, researches, internet and others). - Verifying the information resources. - Continuous improvements in teaching methods as well as encouraging the students to participate effectively in the lectures. - Continuous evaluation of the course content, student level and establish plans accordingly.</p> |

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

| 1. Topics to be Covered | | |
|---|--------------|---------------|
| List of Topics | No. of Weeks | Contact Hours |
| Bacterial structure | 2 | 4 |
| Bacterial physiology and metabolism | 0.5 | 1 |
| Bacterial Genetics | 2 | 4 |
| Antimicrobial agents | 1 | 2 |
| Sterilization and disinfection | 1.5 | 3 |
| General properties of viruses | 1 | 2 |
| Virus replication | 0.5 | 1 |
| Bacteriophages | 0.5 | 1 |
| Laboratory diagnosis of viral infections | 1 | 2 |
| Antiviral agents | 0.5 | 1 |
| General properties of fungi | 1 | 2 |
| Laboratory diagnosis of fungal infections | 0.5 | 1 |
| Antifungal drugs | 0.5 | 1 |
| PRACTICALS | | |
| Laboratory safety measures | 1 | 1 |
| Microscopy, stains and microscopic examination of microorganisms | 3 | 3 |
| Culture media | 2 | 2 |
| Cultivation procedures | 1 | 1 |

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| Tests for identification of bacteria | 2 | 2 |
| Antibiotic sensitivity tests | 2 | 2 |
| Diagnostic techniques in virology laboratory | 1 | 1 |
| Diagnostic techniques in mycology | 1 | 1 |

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|--|---------|----------|------------|-----------|--------|-------|
| 2. Course components (total contact hours and credits per semester): | | | | | | |
| | Lecture | Tutorial | Laboratory | Practical | Other: | Total |
| Contact Hours | 21 | 4 | 13 | 13 | ----- | 38 |
| Credit | 2 | - | 1 | 1 | ----- | 3 |

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| 3. Additional private study/learning hours expected for students per week. | <input type="text"/> |
| Group assignments: The students will be divided into small groups and will be given a research subject to be prepared in a written and software format for presentation. | |

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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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Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

| | NQF Learning Domains And Course Learning Outcomes | Course Teaching Strategies | Course Assessment Methods |
|-----|---|---|---|
| 1.0 | Knowledge | | |
| 1.1 | <p>Acquire the basic knowledge about medically important bacteria considering their structure, physiology, metabolism and genetics.</p> <p>Understand the general properties of viruses and fungi causing human infections.</p> <p>Develop an understanding of prevention and control of infectious diseases by sterilization, disinfection, antiseptics and antimicrobial chemotherapy.</p> <p>Know and identify multi-drug resistant organisms.</p> | Lectures, tutorials and independent study assignments. | <p>10 minutes Multiple choice questions carrying 5% of final assessment.</p> <p>Group assignment carrying 5% of final assessment.</p> <p>Mid-term Exam (M.C.Qs and short accounts) carrying 30% of final assessment.</p> <p>Final term Exam (M.C.Qs and short accounts) carrying 40% of final assessment.</p> |
| 1.2 | | | |
| 2.0 | Cognitive Skills | | |
| 2.1 | <p>The ability to compare and contrast between important groups of microorganisms.</p> <p>The ability to apply the gained knowledge to design tests involving microbial investigations to assess and solve microbiological problems in human infections</p> <p>The ability to think critically and make reasonable judgments by analyzing, combining and evaluating quantitative and non-quantitative information.</p> | Lectures, practical laboratory work and groups assignments. | <p>Practical notebook with laboratory problem solving-based questions carrying 5% of final assessment.</p> <p>Group assignment carrying 5% of final assessment.</p> <p>Final term Exam (M.C.Qs and short accounts) carrying 20% of final assessment.</p> |
| 2.2 | | | |
| 3.0 | Interpersonal Skills & Responsibility | | |
| 3.1 | Acquire the basic skills of | Group | Students' attendance carrying 5% |

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| | <p>microbiological laboratory and standard techniques for microscopic examination, staining, cultivation and identification of organisms.</p> <p>Acquire the laboratory skills for performing antimicrobial susceptibility testing by proper choice of antibiotics and sensitivity testing methods as well as interpretations of the laboratory results.</p> <p>Recognize and realize the significance of safety in microbiology laboratory and the applications of laboratory safety measures.</p> | <p>assignment, practical classes and tutorials.</p> | <p>of final assessment.</p> <p>Group assignments carrying 5% of final assessment.</p> |
| 3.2 | | | |
| 4.0 | Communication, Information Technology, Numerical | | |
| 4.1 | <p>Utilize efficiently the different knowledge resources including the library resources and the web sites.</p> <p>Assess and manipulate laboratory results through various mathematical and statistical methods.</p> | <p>Practical classes.</p> | <p>Mid-term practical exam carrying 10% of final assessment.</p> <p>Final term practical exam carrying 10% of final assessment.</p> <p>Practical notebook with laboratory problem solving-based questions carrying 5% of final assessment.</p> |
| 4.2 | | | |
| 5.0 | Psychomotor | | |
| 5.1 | <p>Perform accurately different microbiological techniques for microscopic examination, staining, cultivation and identification of organisms.</p> <p>Perform with ease the antimicrobial susceptibility testing.</p> | <p>Practical classes.</p> | <p>Mid-term practical exam carrying 10% of final assessment.</p> <p>Final term practical exam carrying 10% of final assessment.</p> |
| 5.2 | | | |

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

| NQF Learning Domains | Suggested Verbs |
|---|--|
| Knowledge | list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write |
| Cognitive Skills | estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise |
| Interpersonal Skills & Responsibility | demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write |
| Communication, Information Technology, Numerical | demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize |
| Psychomotor | demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct |

Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

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|----------|----------|----------|------------|---------|-----------|------------|
| Consider | Maximize | Continue | Review | Ensure | Enlarge | Understand |
| Maintain | Reflect | Examine | Strengthen | Explore | Encourage | Deepen |

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

| 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 |
| 1 | 1 st Quiz | 3 rd week | 1% |
| 2 | 2 nd Quiz | 5 th week | 1% |
| 3 | 1 st Mid-term Exam | 6 th week | 15% |
| 4 | 2 nd Mid-term Exam | 8 th week | 15% |
| 5 | 3 rd Quiz | 10 th week | 1% |
| 6 | 4 th Quiz | 12 th week | 1% |
| 7 | Assignments | 13 th week | 5% |
| 8 | 5 th Quiz | 14 th week | 1% |
| 9 | Practical notebook | 14 th week | 5% |
| 10 | Attendance | The whole semester | 5% |
| 11 | Final term Exam | 15 th week | 50% |

D. Student Academic Counseling and Support

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)

Academic hours will be determined and addressed on home pages of the staff members on Najran university web site.

E. Learning Resources

1. List Required Textbooks

1. **Medical Microbiology.** Jawetz, Melnick and Adelberg's. Latest edition.
2. **Bailey and Scott's Diagnostic Microbiology.** Baron and Finegold. Latest Edition.
3. **Color Atlas of diagnostic Microbiology.** Maza LD, Pezzlo M, Baron E. Mosby-year book Inc., USA. Latest Edition
4. **Manual of Clinical Microbiology.** Murray PR, et al. ASM Press. Latest Edition.
5. **Manual for the Laboratory Identification and Antimicrobial Susceptibility Testing of Bacterial Pathogens of Public Health Importance in the Developing World.** Perilla MJ, et al. CDC and WHO.

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| <p>6. District laboratory practice in tropical countries. Monica C. Cambridge Univ. Press. Latest edition.</p> <p>7. Topley and Wilson's Microbiology and microbial infections. Balows A and Sussman M. Hodder Arnold Publication. Latest edition.</p> <p>8. Zinsser Microbiology. Wolfgang et al. Appelton & Lange Co., CA, USA. Latest edition.</p> |
| 2. List Essential References Materials (Journals, Reports, etc.) |
| <p>3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)</p> <p>1. Medical Microbiology. Jawetz, Melnick and Adelberg's. Latest edition.</p> |
| <p>4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)</p> <p>1. E-Learning (education by fun): Video tapes (audio-visual)</p> <p>2. www.WHO.org</p> <p>3. www.CDC.org</p> <p>4. www.ASM.org</p> |
| 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.) |
| <p>1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)</p> <p>- Lecture room (20 students capacity) supplied with data show for lectures presentation</p> <p>- Laboratory (15 students capacity) supplied with data show, microscopes (one for each student), incubators, ovens as well as reagents and kits for microbiological techniques.</p> |
| <p>2. Computing resources (AV, data show, Smart Board, software, etc.)</p> <p>- Computers and multimedia are already available.</p> |
| <p>3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)</p> <p>- Library supplied with reference text books, electronic resources.</p> |

G Course Evaluation and Improvement Processes

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| 1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching |
| <ul style="list-style-type: none"> - Confidential completion of standard course evaluation questionnaire. - Focus group discussion with small groups of students. |
| 2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor |
| <ul style="list-style-type: none"> - Observations and assistance from colleagues. - Independent advice on assignment tasks from the Dean and governing body. |
| 3 Processes for Improvement of Teaching |
| <ul style="list-style-type: none"> - Reviewing the feedback and action plan for improvement will be organized accordingly. |
| 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). |
| <ul style="list-style-type: none"> - Check marking of a sample of examination papers by other staff members. - Check marking of assignment tasks by the Dean and governing body. |
| 5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. |
| <ul style="list-style-type: none"> - Based on students' questionnaires feedback. |

Faculty or Teaching Staff: Dr Mohammad AM Nasher.

Signature: 

Date Report Completed: Wednesday, 17/05/2017 (21/08/1438)

Received by: Dr Bandar al-Shehri,

Head, Department of Clinical Laboratory Sciences

Signature: _____ Date: Wednesday, 17/05/2017 (21/08/1438)