



هيئة تقويم التعليم

Education Evaluation Commission

المركز الوطني للتقويم والاعتماد الأكاديمي
National Center for Academic Accreditation and Evaluation

ATTACHMENT 5.

T6. COURSE SPECIFICATIONS (CS)

Course Specifications

Institution: University of Tabuk	Date: 12/08/1440
College/Department : Science/Biology	

A. Course Identification and General Information

1. Course title and code: General Genetics (BIO 221)			
2. Credit hours: 3			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Biology			
4. Name of faculty member responsible for the course Dr. Manal Amir Mohammed Salih			
5. Level/year at which this course is offered: Level 4			
6. Pre-requisites for this course (if any): General Biology (BIO 202)			
7. Co-requisites for this course (if any): not found			
8. Location if not on main campus:			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="75"/>
b. Blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input type="checkbox"/>	What percentage?	<input type="text"/>
d. Correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. Other (Lab work)	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="25"/>
Comments:			

B Objectives

1. What is the main purpose for this course? Help students to become familiar with the language of genetics and the terminology of genetics. Provide students with a strong background in the principles of Mendelian genetics. Students will become familiar with Mendel's basic postulates and the additional insights that modern genetics has brought to this field.
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)

Provide more related references, add sub-topics for new branches related to modern genetics. Adding more experiments to the practical section.

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

Course Description:

- The course includes introduction, historical background and basic concepts of genetics, Mendelian laws; segregation, independent assortment), gene interaction, incomplete dominance, co-dominance, lethal genes, crossing over, gene mapping and sex determination. It also covers topics on multiple alleles, cell cycle and mitotic division, meiotic division & significance of meiosis, structure of DNA and RNA, DNA packaging in the chromosome, DNA replication, DNA synthesis in prokaryotes & eukaryotes, transcription and translation of messenger RNA (mRNA), and protein synthesis.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction to genetics Mendel's First Law (law of Segregation) Mendel's second law (law of Independent Assortment)	2	4
Allelic relation: Dominant and Recessive, Co-dominance, Lethal alleles, Multiple alleles, incomplete dominance, Penetration percentage. Non-Mendelian Genetics.	2	4
Genetics of Sex Sex determination, sex- linked characters, Sex influenced, sex limited characters.	2	4
Linked Genes and Chromosome mapping, crossing over	2	4
Cell cycle and mitotic division Significance of meiosis	1	2
Nucleic acids: structure and function DNA packaging in the chromosome. Transcription & Translation of messenger RNA (mRNA).Protein synthesis	2	4
Nucleic acid replication and synthesis in prokaryotes & eukaryotes.	2	4

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	26		26			52
Credit	2		1			3

3. Additional private study/learning hours expected for students per week. None

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	Mendel's basic postulates and laws	Traditional lectures	Quiz using definitions,
1.2	Modern genetics and additional insights	Tutorials and essays	State and list.
2.0	Cognitive Skills		
2.1	To be aware of the power of the DNA technology And DNA manipulation.	Traditional lectures	Quiz using: explain, compare, label and problem

			solving
2.2	Prepare students for more advanced cell courses	Discussions and tutorials	Draw, label, give examples
3.0	Interpersonal Skills & Responsibility		
3.1	To help students to develop scientific observation	Lectures, discussions	Quiz using: illustrate, show
3.2	To link these observations with principles given	Assignments and class work	Match, explain
4.0	Communication, Information Technology, Numerical		
4.1	Prepare students for the principles of modern technology	Practices, tutorials and essay writing	Assignments, tutorials, problem solving
4.2			
5.0	Psychomotor		
5.1	Encourage students to develop their capabilities in the applied session of the course principles	Blended lectures, practices and class discussion	Quiz to solve problems, draw and construct
5.2	Introduce the students to different information sources	Lectures and class discussions	Assignments and short essays

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,

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

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.

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	Quiz	5th	10%
2	Midterm	8th	25%
3	Practical midterm	8th	10%
4	Final practical Test	14	15%
5	Final Test	15	40%
6	Total		100%

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)
6 office hours divided into 3 days each of 2 hours

E. Learning Resources

1. List Required Textbooks 1. Gardinar.(1985).Introduction to Genetics. 2 Lewin, B. (1983). Genes. John Wiley and Sons Inc. New York
2. List Essential References Materials (Journals, Reports, etc.) Genetica, Chromosoma
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Journal of molecular and applied Genetics
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Computers with net connection, Scientific websites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Programs and CDs if available

F. Facilities Required

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.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
Large class room with permanent seats is recommended.
Multimedia.

Computers with access to internet.
2. Computing resources (AV, data show, Smart Board, software, etc.) Related software and smart boards are recommended
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Microscopes with drawing tube. Lens micrometer Permanent slides for cell division Stains: safranin, light green, giemsa, Aceto-carmin and basic fuchsin Teaching models.

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching Course evaluation form submitted to the students in the last teaching week
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor Revision questions for 10 minutes at the end of each lecture. Outline the important points of the previous lesson in the first 5 minutes by shooting questions
3 Processes for Improvement of Teaching Updating the notes given to the students More quizzes and class work
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) Occurs by consulting other staff members related to the specialization in non-formal way
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. Revise the syllabus, updating notes. Basic of statistics is required for solving and understanding some genetic concepts.

Faculty or Teaching Staff: Manal Amir Mohammed Salih

Signature: *Manal AM Salih*

Date Report Completed: 12/08/1440

Program Co-ordinator: Dr. Omar Salem Obeid Bahattab

Signature: *Omar Bahattab*

Date: 16/8/1440