



## UNIVERSITI TEKNOLOGI MARA

### BMS684: SPECIAL TOPICS IN BIOTECHNOLOGY

<b>Course Name (English)</b>	SPECIAL TOPICS IN BIOTECHNOLOGY <b>APPROVED</b>
<b>Course Code</b>	BMS684
<b>MQF Credit</b>	2
<b>Course Description</b>	This course is designed to allow students to use the knowledge and skills gained over the past semester to evaluate and analyse a product, service or solution developed using biotechnology tools. The course is partly conducted on a distance learning mode, where students are required to do a series of literature survey and self reading, discuss with their assigned lecturers, through a series of scientific analysis. Students will be introduced to strategies and requirements for bringing a scientific innovation to the market. Drawing from this, each student will prepare a proposal for a biotechnological solution to a real life problem, and defend the proposal in a presentation. Students are also required to attend any two seminars/ conference and produced independently written summaries.
<b>Transferable Skills</b>	<ol style="list-style-type: none"><li>1. Summarize core points from selected scientific articles on a biotechnology innovation/ application (C6)</li><li>2. Evaluate the impact of the biotechnology innovation/ applications, including limitations and possible improvements (C5)</li><li>3. Demonstrate entrepreneurial skills in potential commercial applications in biotechnology (A4)</li><li>4. Demonstrate inquisitive mind skills in scientific /entrepreneurial activities/ seminars/ conference (A3)</li></ol>
<b>Teaching Methodologies</b>	Seminar/Colloquium, Discussion, Presentation, Directed Self-learning
<b>CLO</b>	<p>CLO1 Summarize core points from selected scientific articles on a biotechnology innovation/ application.</p> <p>CLO2 Evaluate the impact of the biotechnology innovation/ applications, including limitations and possible improvements</p> <p>CLO3 Demonstrate inquisitive mind skills in scientific /entrepreneurial activities/ seminars/ conference</p>
<b>Pre-Requisite Courses</b>	No course recommendations
<b>Topics</b>	<p><b>1. 1. Biotechnology innovations</b></p> <p>1.1) a. Applications of biotechnology</p> <p>1.2) b. Underlying science and principles</p> <p><b>2. 2. Summarizing information from scientific articles</b></p> <p>2.1) a. Objectives</p> <p>2.2) b. Assumptions</p> <p>2.3) c. Methodology</p> <p>2.4) d. Conclusion</p> <p>2.5) e. Writing the abstract</p> <p><b>3. 3. Critical analysis</b></p> <p>3.1) a. Experimental design</p> <p>3.2) b. Data analysis</p> <p>3.3) c. Alternative conclusions</p>

#### **4. 4. Biotechnology Entrepreneurship**

- 4.1) a. Technology opportunities
- 4.2) b. Intellectual properties
- 4.3) c. Market development
- 4.4) d. Financial capital
- 4.5) e. Product development
- 4.6) f. Regulatory issues
- 4.7) g. Growth and collaborations
- 4.8) h. Responsible entrepreneurship

Assessment Breakdown		%	
Continuous Assessment		100.00%	

  

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Article Test #4. Students are given 48 hours to read given a challenging scientific article, after which they will submit answer to a set of questions.	15%	CLO2
	Assignment	Article #1. Data extraction and summary of results.	20%	CLO1
	Assignment	Article #2. Data extraction, summary of data analysis and major findings.	25%	CLO2
	Presentation	Article #3. Sourced by student with the help of tutors. Critical analysis and video presentation.	40%	CLO3

  

Reading List	Recommended Text	Reference Book Resources
	<ul style="list-style-type: none"> <li>• Brink-Budgen RVD 2010, <i>Critical Thinking for Students: Learn the Skills of Analysing, Evaluating and Producing Arguments</i>, 4th Ed., Oxford How To Books Ltd.</li> <li>• Shimasaki C. 2009, <i>The business of bioscience : what goes into making a biotechnology product.</i>, Springer Science</li> </ul>	<ul style="list-style-type: none"> <li>• Firdos Alam Khan 2016, <i>Biotechnology Fundamentals, Second Edition</i>, CRC Press [ISBN: 9781498723428]</li> <li>• Annabelle Harvie, <i>Food Security</i> [ISBN: 9781634636537]</li> <li>• William J Thieman 2014, <i>Introduction to Biotechnology</i>, 3rd Ed., Pearson Education Limited [ISBN: 978129202761]</li> <li>• Ray V Harren 2013, <i>Introduction to Biotechnology</i>, Vengage Learning [ISBN: 9781435498372]</li> <li>• Allen Healy 2013, <i>Agricultural Biotechnology</i>, Koros Publisher [ISBN: 9781781633311]</li> </ul>

  

<b>Article/Paper List</b>	This Course does not have any article/paper resources
<b>Other References</b>	This Course does not have any other resources