



UNIVERSITI TEKNOLOGI MARA

BIO565: COMPARATIVE BIOLOGY OF REPRODUCTION

Course Name (English)	COMPARATIVE BIOLOGY OF REPRODUCTION APPROVED
Course Code	BIO565
MQF Credit	3
Course Description	The course provides insight into the anatomy, physiology and function of the reproductive system in animals and humans with the aim to provide a sound knowledge on the reproductive modes, sexual differentiation, hormones and regulatory mechanisms of reproduction. The topics on infertility and techniques in assisted reproduction will be addressed in relation to current issues and research development in the field of reproduction.
Transferable Skills	Upon completion of the subject students are able to communicate effectively and apply the knowledge of reproduction not only for the assessment practices of the code but also in their daily life .
Teaching Methodologies	Lectures, Web Based Learning, Discussion
CLO	<p>CLO1 Explain fundamental knowledge, facts, techniques and the importance of reproduction.</p> <p>CLO2 Describe concepts, modes, regulatory mechanisms and techniques used in animal and human reproduction.</p> <p>CLO3 Relate the principles and techniques used in reproduction with entrepreneurship.</p>
Pre-Requisite Courses	No course recommendations
Topics	
<p>1. Introduction</p> <p>1.1) 1.1 The world of reproductive biology-molecular to ecosystem</p> <p>1.2) 1.2 Modes of reproduction and adaptations</p> <p>1.3) 1.3 Sex dimorphism-Guided independent learning-online video lecture "Animal reproduction". 1. https://www.educator.com/biology/animated-biology-lectures/animal-reproduction.php 2. http://www.pbs.org/wgbh/evolution/sex/advantage/ 3. http://www.youtube.com/watch?v=SB8UodV_DJg (bird courtship) 4. http://www.youtube.com/watch?v=k-0pl5Kp7UQ (bird courship)</p>	
<p>2. Reproductive system</p> <p>2.1) 2.1 Macroscopic and microscopic anatomy of reproductive system in males</p> <p>2.2) 2.2 Macroscopic and microscopic anatomyof reproductive system in females</p> <p>2.3) 2.3 Comparative anatomy of reproductive system in other vertebrates</p>	
<p>3. Puberty</p> <p>3.1) 3.1 Puberty in males and females</p> <p>3.2) 3.2 Factors affecting puberty-CNS maturation, environmental influence</p> <p>3.3) 3.3 Variation and Abnormality of male and female puberty</p>	
<p>4. Gametogenesis</p> <p>4.1) 4.1 Spermatogenesis and spermiogenesis</p> <p>4.2) 4.2 Oogenesis and oocyte structures</p> <p>4.3) 4.3 Hormones and gametogenesis</p>	
<p>5. Ovarian cycle</p> <p>5.1) 5.1 Oestrus and oestrus cycle</p> <p>5.2) 5.2 Menstrual cycle</p> <p>5.3) 5.3 Hormonal regulation of ovarian cycle</p> <p>5.4) 5.4 Estrus synchronisation</p>	

<p>6. Ovulation</p> <p>6.1) 6.1 Induced vs spontaneous ovulation, synchronised ovulation, superovulation and oocyte maturation</p> <p>6.2) 6.2 Mechanism of ovulation</p> <p>6.3) 6.3 Anovulation -Guided independent learning-online- Oocyte Retrieval/Determining oocyte quality</p>
<p>7. Fertilisation</p> <p>7.1) 7.1 Sperm assessment Sperm assessment Guided independent learning-online -Sperm count/viability -</p> <p>7.2) 7.2 Stages of fertilisation: Sperm capacitation and acrosome reaction</p> <p>7.3) 7.3 Mechanism of polyspermy block</p>
<p>8. Development</p> <p>8.1) 8.1 Cleavage and implantation</p> <p>8.2) 8.2 Organogenesis</p> <p>8.3) 8.3 Gestation and pregnancy</p> <p>8.4) 8.4 Labour and mechanism of parturition</p> <p>8.5) 8.5 Lactation</p> <p>8.6) 8.6 Hormones of development and lactation</p>
<p>9. Assisted Reproductive Technology and Infertility</p> <p>9.1) 9.1 Techniques in reproductive biology</p> <p>9.2) 9.2 IUI/AI, GIFT, ZIFT, IVF, ICSI, Cloning</p> <p>9.3) 9.3 ART and ethics</p>
<p>10. Birth control</p> <p>10.1) 10.1 Contraception and birth control methods</p> <p>10.2) 10.2 Birth control and ethics</p> <p>10.3) 10.3 Application and effectiveness of birth control methods</p>
<p>11. Sex/gender determination</p> <p>11.1) 11.1 Male and female chromosomes</p> <p>11.2) 11.2 Organogenesis of male and female reproductive systems</p> <p>11.3) 11.3 Gender ambiguity and abnormality</p> <p>11.4) 11.4 Environment and sex determination Guided independent learning-video materials- Gender and transsexuality</p>
<p>12. Hormones regulation in reproduction</p> <p>12.1) 1.1. Hormones and seasonal breeders</p> <p>12.2) 1.2 Hormones of Puberty</p> <p>12.3) 1.3 Hormones of gametogenesis</p> <p>12.4) 1.4. Hormones and ovarian cycles/ovulation</p> <p>12.5) 1.5 Hormones of gestation/parturition</p> <p>12.6) 1.6 Hormones and sex determination</p>

Assessment Breakdown	%
Continuous Assessment	50.00%
Final Assessment	50.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Assignment on current issues to be submitted during week 14	10%	CLO3
	Case Study	Question relates to Chapter 6 to 10.	20%	CLO1
	Test	Question covers from Chapter 1 to 5	20%	CLO2

Reading List	Recommended Text	<ul style="list-style-type: none"> • Martin H. Johnson 2012, <i>Essential Reproduction, Includes Wiley E-Text</i>, 7 Ed., 1-15, John Wiley & Sons [ISBN: 9781118423899] • Richard E. John & Kristen H. Lopez/ 4th edition 2014, <i>Human Reproductive Biology</i>, 4 Ed., Academic Press USA [ISBN: 10:0123821843]
	Reference Book Resources	<ul style="list-style-type: none"> • Rebecca Krisher 2013, <i>!!!Book Not Found</i>, first Ed., 11, Wiley-Blackwel UK [ISBN: 978-0-470-959] • Poul Hyttel, Fred Sinowatz, Morten Vejlsted 2010, <i>Essentials of Domestic Animal Embryology</i>, 1 Ed., 20, Saunders Limited CANADA [ISBN: 9780702028991] • Heide Schatten, Gheorghe M. Constantinescu 2007, <i>Comparative Reproductive Biology</i>, 1 Ed., 14, Wiley-Blackwell USA [ISBN: 0813815541] • Richard E. Jones & Kristin H. Lopez 2014, <i>Human Reproductive Biology</i>, fourth Ed., AP USA
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	