

## Subject Description Form

<b>Subject Code</b>	ABCT1D16
<b>Subject Title</b>	<b>Introduction to vaccines – history, development and impact</b>
<b>Credit Value</b>	3
<b>Level</b>	1
<b>Pre-requisite / Co-requisite/ Exclusion</b>	Programme exclusion: Only exclude students of programmes 12451 and 12451-SY. Other ABCT students are allowed to take this CAR subject.
<b>Objectives</b>	This subject aims to introduce some general concepts about vaccines, immunity, impact and understanding of public health approach in the prevention of infections. The course is tasked to broaden the knowledge of students for critical life-long thinking and risk assessment for themselves and family when the topic of vaccination arises.
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> <li>a) Understand the fundamental knowledge of immunity and protection of infections.</li> <li>b) Understand the different types of vaccines and their applications.</li> <li>c) Acquire analytical and critical decision making through a process of questioning and problem solving about vaccination.</li> <li>d) Acquire general understanding of risks/benefits of vaccines and abilities to make risk assessments for self and family members.</li> <li>e) Acquire an awareness of the need for life-long vaccination in the protection of society as a whole as well as current social discussions on vaccine applications.</li> </ol> <p><u>We will instill an understanding on the use of vaccines to our students.</u> Although there is a lot of media coverage and internet discussions on the use of vaccines, some of which are not knowledge-based or even containing wrong information leading to hesitations to receive vaccines by the general public. We will explain the reasons why some misunderstandings about vaccines were developed and to introduce knowledge on how vaccines are made and licensed for use in human/animals.</p> <p><u>We will introduce to our students an appreciation and active discussion on the impact of vaccines in public health.</u> Students are also encouraged to discuss the issue of vaccination and ethical issues in relation to its application.</p>

<p><b>Subject Synopsis/ Indicative Syllabus</b></p>	<p><b><u>Basic concepts of vaccination</u></b></p> <p>A: Introduction to vaccines: <span style="float: right;">6 Hrs</span>  The history of vaccination  Infections and mechanisms of disease induction  Basic concepts of immunity and protection against infection  Types of vaccines and their development  Different ways of vaccine application (injections and others)</p> <p>B: Common vaccines used in modern times: <span style="float: right;">8 Hrs</span>  Spread of infection and how they cause diseases</p> <p><b><u>Implementation of vaccination</u></b></p> <p>A: Global vaccination programmes <span style="float: right;">4 Hrs</span>  Extended Program of Immunization (EPI) for children  Disease-eradication programs using vaccines  Mother and child protection via vaccines Pandemic and seasonal influenza vaccination  Global partnerships for immunization</p> <p>B: Vaccination policy and implementation <span style="float: right;">2 Hrs</span></p> <p><b><u>Making a vaccine</u></b></p> <p>A: Making a vaccine and its approval for use in human <span style="float: right;">4 Hrs</span>  Targets for vaccine development  Assessment of new vaccines  Approval processes for new vaccine</p> <p>B: Unmet public health needs for vaccines <span style="float: right;">2 Hrs</span>  Novel and new infection  Vaccines for cancer  Animal vaccine needs for human health protection</p> <p><b><u>Obstacles and ethics in large-scale vaccination</u></b></p> <p>A: Myths and misconceptions about vaccines <span style="float: right;">2 Hrs</span>  B: Ethical issues in vaccination <span style="float: right;">2 Hrs</span></p>
<p><b>Teaching/Learning Methodology</b></p>	<p><b>Lectures</b>  Lectures will be used to cover some of the background biological knowledge including basic knowledge of immunity, recognition of self and non-self, vaccine types, vaccine development, programs of vaccination and sociology of vaccination. These background knowledges are needed for the understanding on the use of vaccine for a particular disease in human and animals. The main part of this subject will be used to cover different vaccines used in Hong Kong and globally. We expect to invite outside lecturers like medical doctors (to cover some clinical issues) and vaccine specialists (for general discussions on topics).</p> <p><b>Tutorials</b>  Exercises and videos will be provided before or during tutorials. We expect the students to participate in the discussions during tutorials. We will deliver the materials prior to the tutorials to encourage them to participate more actively during classes. Students will be required to present their assigned work during tutorials.</p> <p><b>Group poster presentations</b>  Students will be asked to present a topic of their choice to the whole class. A list of subjects relating to everyday knowledge on vaccination will be provided for the preparation of such posters. A total of 20 topics will be provided for choosing. Four students will be assigned into each group for poster preparation and presentation (total of 15 posters). The purpose is to allow more in-depth</p>

	<p>studies of sub-topics related to vaccines in general and to enhance higher order of thinking especially on societal debates on the pros and cons of vaccination. The final poster presentation is a group effort on information research on the topic and class discussion to enhance dissemination and assessment of knowledge.</p> <p><b>Written assignment</b> Students within each group are to write a 6 to 8-page essay relating to their group presentation. The group poster presentation is to include sections on (1) Background Information – historic background, causal relationship of microbes and disease, burden to society etc.; (2) how would vaccines be developed for such diseases; (3) likely impact to society and (4) conclusions, knowledge gaps and prospects. Each student in a group is responsible for one section in the poster topic and to report on their findings in their written assignment. In such way students are required to work in unison to address a topic yet their critical input in each section are presented as his/her report on individual effort of higher learning and critical assessment of the topic.</p>																																																														
<p><b>Assessment Methods in Alignment with Intended Learning Outcomes</b></p>	<table border="1"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> <th></th> </tr> </thead> <tbody> <tr> <td>1. Quiz</td> <td>40%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>2. Poster presentation</td> <td>20%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>3. Written assignment</td> <td>25%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>4. Discussion in class</td> <td>10%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>5. Attendance</td> <td>5%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>Total</td> <td>100 %</td> <td colspan="6"></td> </tr> </tbody> </table> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p><b>Quiz</b> Through reviewing teaching material and acquisition of additional materials to prepare for quiz, students are able to achieve teaching outcomes a, b, c and d.</p> <p><b>Poster presentation</b> By assigning topics for poster presentations and general discussions of all posters, students can gain in-depth knowledge in vaccination to achieve learning objectives a to e.</p> <p><b>Written assignment</b> Written assignment will largely be focused on social issues relating to vaccination with general application of knowledge covered in the course in addition to self-learning and critical assessment on pros and cons. Students are expected to achieve learning objectives from a to e. Individual contribution to the Poster per student is assessed by a report for each student on their part on (1) background information gathering; (2) research/assessment process on the topic; (3) how a conclusion is derived from the information and (4) critical thinking to extend and improve the knowledge to a more general application of vaccines.</p>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						a	b	c	d	e		1. Quiz	40%	✓	✓	✓	✓			2. Poster presentation	20%	✓	✓	✓	✓	✓		3. Written assignment	25%	✓	✓	✓	✓	✓		4. Discussion in class	10%	✓	✓	✓	✓	✓		5. Attendance	5%	✓	✓	✓	✓	✓		Total	100 %						
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	<p><b>Attendance and class performance</b> Attendance is taken in all lectures and tutorials to ensure student contact is adequate. Students are assigned with topics to discuss in class and tutorials. Such assessments can be made to the students' understanding of the topics and their continued knowledge acquisition.</p>	
<p><b>Student Study Effort Expected</b></p>	Class contact:	
	<ul style="list-style-type: none"> <li>▪ Lecture</li> </ul>	25 Hrs.
	<ul style="list-style-type: none"> <li>▪ Tutorials</li> </ul>	14 Hrs.
	Other student study effort:	
	<ul style="list-style-type: none"> <li>▪ Poster preparation</li> </ul>	40 Hrs.
	<ul style="list-style-type: none"> <li>▪ Written assignment</li> </ul>	40 Hrs.
	Total student study effort	119 Hrs.
<p><b>Reading List and References</b></p>	<p>1. Lecture notes and support materials will be provided. 2. Recommended textbook: <i>Vaccines, 6th Edition</i> - By Stanley A. Plotkin et al. Saunders, ISBN: 978-1-4557-0090-5 (<a href="http://www.sciencedirect.com/science/book/9781455700905">http://www.sciencedirect.com/science/book/9781455700905</a>) 3. Others <i>Health Topics – Vaccines. World Health Organization. Web access: <a href="http://www.who.int/topics/vaccines/en/">http://www.who.int/topics/vaccines/en/</a></i> <i>Vaccines and immunization. US Center for Disease Control and Prevention (CDC) Web access: <a href="http://www.cdc.gov/vaccines/">http://www.cdc.gov/vaccines/</a></i> <i>Immunization against infectious disease (the Green Book). Public Health England. Web access: <a href="https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book">https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book</a></i></p>	