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| **Course Name: Biosafety and Biosecurity** | | |
| **Course Code: BIOT 211** | **Course Type : Elective** | **Course Credits: 3** |
| **Class Timings:**  Mon Wed 12:00 – 12:50 (S312)  Mon 08:00 – 09:50 (S341) | **Section: A** | **Student Meeting Hours/ Office Hours:**  Tuesday and Thursday 11:00 to 13:00  Office/Lab: S-327/Lab 341/Lab 429 or by appointment |
| **Instructor Name: Dr. Muhammad Imran** | | |
| **A Note from the Instructor:**  Instruction for this course will be through in person approach.  (Currently not applicable) Off-campus students will join the class online by google meet. Lecture recording will be made available to students on Moodle. Course management will be done through Moodle. | | |
| **Instructor Contact Details**  Email: [muhammadimran@fccollege.edu.pk](mailto:muhammadimran@fccollege.edu.pk), 0333-9990735  Office Hours (face to face and/ or online): Tuesday and Thursday 11:00 to 13:00 or by appointment  Guidelines for contacting instructor: for in-person consultation, students can appear during the time mentioned. For online meeting, send an email to get appointment. | | |
| **Course Description**:  This is a basic course for people who may work in Hospitals, diagnostic centers, University or college laboratories. In labs we might have to work with samples which may have *Ebola, SARS, Typhoid, Tuberculosis* causing organisms just name a few etc. Therefore, it is essential to know the techniques, principles, methodologies and equipment’s needed to work safely.  Additionally, there is need to know how we can secure these assets at individual and institutional level so they may not be used intentionally to cause harm to human and economy.  Pre-requisites if any: --  **Mode of Instruction:** **Synchronous** | | |
| **Main Mode of Instruction: In person on campus**  **Technology Requirements** Be familiar with the use of Moodle, Power point etc.  **Technology Etiquettes:** (**NA)**  Join the session on time.  Rename yourself to your name and roll number.  Mute yourself when not speaking.  Be ready to be presentable on camera.  If allowed to speak, be mindful of your tone and expressions during the session. This is not an anonymous session. Your voice and video are viewed by all who are participating in the session.  **Considerations for Students with Limited Internet/Technology Access:** Lectures and other relevant material will be made available on Moodle | | |
| **Course Objectives or** [**Student Learning Outcomes**](https://docs.google.com/document/d/1me9vpl8iKR_zNX9gIODm7gkVFY9VkuSKpUJe1VyI57M/edit) **(SLOs)**   1. Overview of biosecurity/ biosafety 2. Know the practices, equipment and facilities for the safe and secure handling of dangerous pathogens in a laboratory setting 3. New technologies and emerging need of global bio-security | | |

**Course Content, Learning Material & Activities Schedule**

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| **Wk** | **Topic/ Title** | [**Teaching-Learning Activities**](https://docs.google.com/document/d/1jY2UWb3QuOogkiSMdPvZd33eKe2kRpfzsTm2LSrnLko/edit#heading=h.4dy4q49omahn) | | | [**Assessment**](https://docs.google.com/document/d/1Z4W_utaHpwMJP6B2jJlb9ofxFHmcagrWWOT5cUM9lj4/edit?usp=sharing)  **&** [**Rubrics**](https://docs.google.com/document/d/1IdFfZ8WRSRKSceBYC4jfAyKEYdb1M6Z4GSSLueP8HD0/edit)  (with the due date) |
| **Synchronous**  **(Simultaneously conducted)**  *Presentation / Lecture*  *Live Video-Audio*  *Small-Group Discussion/ Breakout Rooms*  *In-class quiz*  *Q&A/ Live Chat* | | **Asynchronous**  (postal/ Moodle/ email)  *Discussion blogs*  *WhatsApp*  *Readings*  *Moodle Quizzes*  *Assignment Submission*  *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Experiential learning* |
| In-Person | Online **(NA)** | Off-campus and offline **(NA)** |
| 1 | Introduction, | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 2 | Biological Risk assessment | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 3 | Principles of Biosafety | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 4 | Principles of Biosafety  Laboratory Acquired Infections | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 5 | Laboratory Biosafety level criteria (BSL-2 and 3 labs) | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 6 | Personal protective equipment | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 7 | Chemical disinfectants | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 8 | Chemical disinfectants  Biological safety cabinets | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 9 | Biological safety cabinets  Biosecurity program | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 10 | Biosecurity program | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 11 | BSL-2 work practices | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 12 | BSL-3 work practices | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 13 | Presentation on assignment-1 | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 14 | Presentation on assignment-2 | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Presentation / Lecture*  *Discussion/ Breakout Rooms*  *Q&A/ Live Chat* | *Online Content/ Recordings*  *Lecture notes/ Annotated PPT*  *Readings* |  |
| 15 | viva |  |  |  |  |

**‘Out-of-class’ Study Required (across all 3 categories of students -- those attending in-person, online, or asynchronously)**

Typically, this course requires 2-3 hours of out-of-class work each week. Students may also be required to go through pre-class material.

### **Textbooks, Materials, Supplies, and other Resources**

1. Chosewood, L. C. and D. E. Wilson. 2009. Biosafety in Microbiological and Biomedical Laboratories. 5th Edition.
2. World Health Organization. Laboratory biosafety manual. – 3rd edition or any latest.
3. Miller, J. M. *et. al.* 2012. Guidelines for Safe Work Practices in Human and Animal Medical Diagnostic Laboratories
4. Assignment and relevant content can be viewed and practiced from following PHAC web site.

<https://training-formation.phac-aspc.gc.ca/>

**Course Requirements:**

**Class Participation/attendance 5%**

**Assignments:** 15%

**Quizzes:**  15%

**Midterm exam**: 20%

**Final term exam:**  30%

**Lab Exam** 15%

**TOTAL 100%**

**Attendance Policy:**

80% attendance is required in lectures as well as in lab. If a student fails to fulfill the requirement, he/she may not be allowed to appear in final examination.

**Grading Legend**

Below is the grading legend of FCCU (published in all catalogues and available on the FCCU website) as approved by the Academic Council

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| --- | --- | --- | --- |
| **Grade** | **Point Value** | **Numerical Value** | **Meaning** |
| A | 4.00 | 93-100 | Superior |
| A- | 3.70 | 90-92 |
| B+ | 3.30 | 87-89 | Good |
| B | 3.00 | 83-86 |
| B- | 2.70 | 80-82 |
| C+ | 2.30 | 77-79 | Satisfactory |
| C | 2.00 | 73-76 |
| C- | 1.70 | 70-72 |
| D+ | 1.30 | 67-69 | Passing |
| D | 1.00 | 60-66 |
| F | 0.00 | 59 or below | Failing |

**Student Conduct & Other Issues:**

There will be no tolerance for cheating/plagiarism. Detailed policy of classroom misconduct, cheating and plagiarism given in the Student Handbook will be followed. Non-academic use of mobile phone in the class and exams is prohibited. Students are advised to silence their mobiles before coming to class.

**Changes to the Syllabus:**

This syllabus was designed to convey course information and requirements as accurately as possible. It is important to note however that it **may** be subject to change during the course depending on the needs of the class and other situational factors. Such changes would be for your benefit and you will be notified of them as soon as possible.

**Student Support Services**

[Student Counseling Services](https://www.fccollege.edu.pk/ccc/campus-counseling-center/).Students can contact the [Campus Counseling Center](https://www.fccollege.edu.pk/ccc/campus-counseling-center/) at 0331-444-1518 or email [ccc@fccollege.edu.pk](mailto:ccc@fccollege.edu.pk).

[Writing Center](https://www.fccollege.edu.pk/faculty-of-humanities/writing-center/)

[Mercy Health Center](https://www.fccollege.edu.pk/mercy-health-center/)

**Other Useful FCCU Policy Documents:**

[Sexual Harassment Policy](https://www.fccollege.edu.pk/wp-content/uploads/2018/05/Doc1.pdf)

[Anti-Corruption Policy](https://www.fccollege.edu.pk/wp-content/uploads/2018/05/Anti-corruption.pdf)

[Academic integrity](https://www.fccollege.edu.pk/policy-on-academic-integrity/)

[Plagiarism Policy](https://www.fccollege.edu.pk/wp-content/uploads/2018/05/FCCU-Plagiarism-Policy.pdf)

[Academic Calendar](https://www.fccollege.edu.pk/academic-calendar/)