

Semester 1 (Aug – Dec)

- ABM5003 Biomedical Innovation & Enterprise
- BMI5101 Advanced Biomedical Informatics
- ABM5103 Advanced technologies in immune therapeutic development
- ABM5104 Microbiome-Aging-Immunity crosstalk
- ABM5105 Drugs used in Infectious Diseases*
- MDG5204 Advanced Topics in Pharmacology
- ABM5107 One World, One Health: Ecosystems, Animals and Us
- MDG5246 Infectious Diseases: Principles & Research Methods

Semester 2 (Jan – May)

- ABM5002 Advanced Biostatistics for Research
- ABM5101 Applied Immunology
- ABM5102 Vaccine development and its modern applications*
- MDG5207 Clinical Immunology and Immunotherapeutics
- ABM5106 Anticancer Therapeutics
- MDG5233 Current Topics in Drug Design and Development
- MDG5232 Current practices in Biotechnology
- SPH5201 Control of Communicable Diseases**
- SPH5205 Urban Outbreak Management**

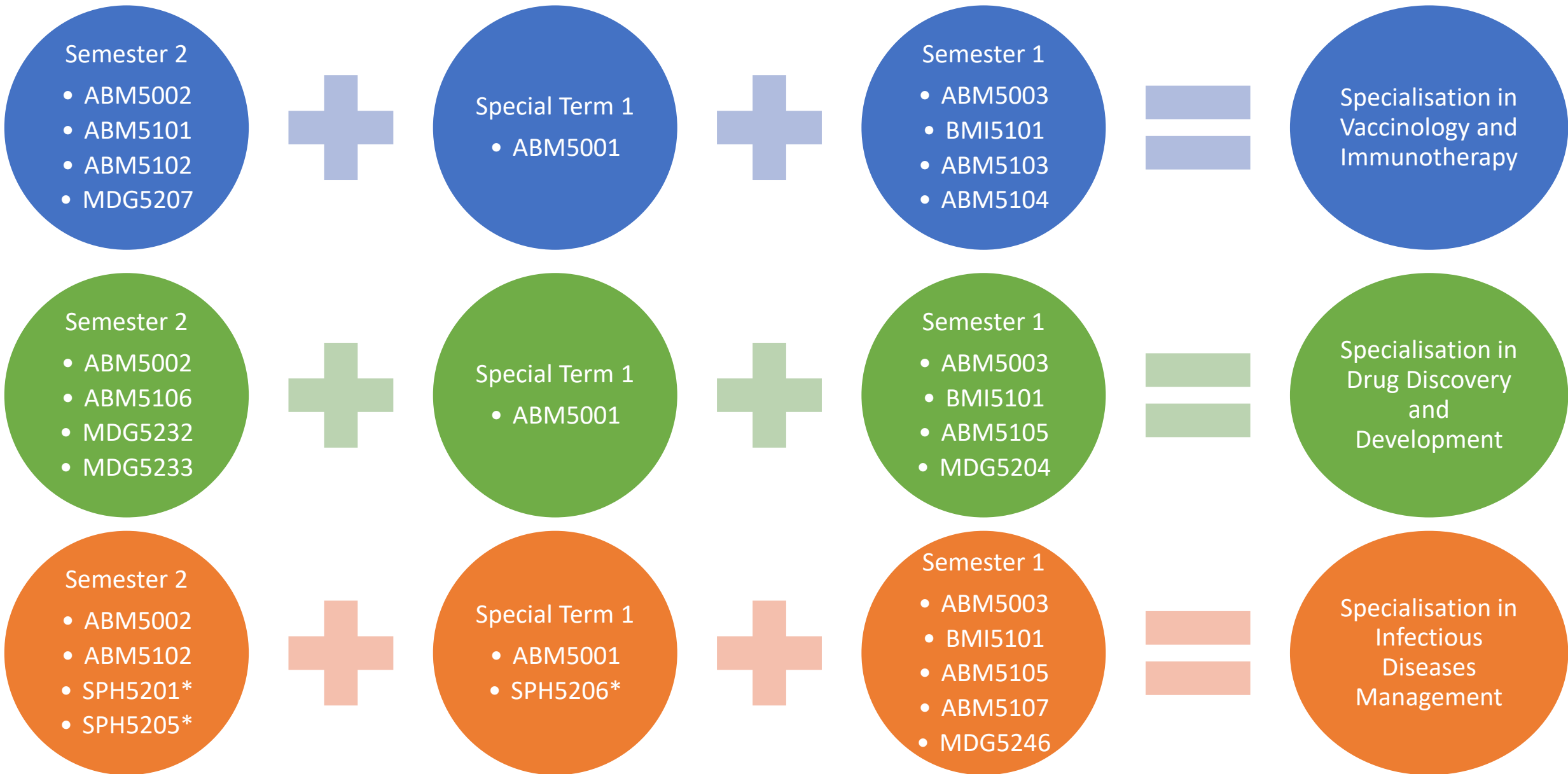
Special Term 1 (May – Jun)

- ABM5001 Leadership in Biomedicine
- SPH5206 Urban Field Epidemiology**

- Core courses
- Electives courses (Vaccinology and Immunotherapy)
- Electives courses (Drug Discovery and Development)
- Electives courses (Infectious Diseases Management)

*Courses are also listed under Infectious Diseases Management specialisation

**Students can only register for one of these 3 elective courses



*Choose one out of 3 electives

Master of Science in Applied BioMedicine

Overview of **Semester 2** Course Schedules (Subject to changes)

| | |
|--|--|
| | Core course |
| | Specialisation in Vaccinology and Immunotherapy |
| | Specialisation in Drug Discovery and Development |
| | Specialisation in Infectious Diseases Management |

| Time Day | Monday | Tuesday | Wednesday | Thursday | Friday |
|-------------|---|--|---|--|--|
| 0800 - 0830 | | | | | ABM5002 Advanced Biostatistics for Research |
| 0830 - 0900 | | | | | |
| 0900 - 0930 | | | | | |
| 0930 - 1000 | | | | | |
| 1000 - 1030 | MDG5232 Current Topics in Drug Design and Development | ABM5102 Vaccine development & its modern applications Applied Immunology | MDG5232 Current Topics in Drug Design and Development | | |
| 1030 - 1100 | | | | | |
| 1100 - 1130 | | | | | |
| 1130 - 1200 | | | | | |
| 1200 - 1230 | | | | ABM5102 Vaccine development & its modern applications Applied Immunology | ABM5106 Anticancer Therapeutics |
| 1230 - 1300 | | | | | |
| 1300 - 1330 | MDG5233 Current Topics in Drug Design and Development | | MDG5233 Current Topics in Drug Design and Development | | |
| 1330 - 1400 | | | | | |
| 1400 - 1430 | | ABM5106 Anticancer Therapeutics | | | |
| 1430 - 1500 | | | | | |
| 1500 - 1530 | | | | | ABM5101 Applied Immunology |
| 1530 - 1600 | | | | | |
| 1600 - 1630 | ABM5101 Applied Immunology | MDG5207 Clinical Immunology and Immunothe- ra- peutics | | MDG5207 Clinical Immunology and Immunotherapeutics | ABM5101 Applied Immunology (Practical) |
| 1630 - 1700 | | | | | |
| 1700 - 1730 | | | | | |
| 1730 - 1800 | | | | | |
| 1800 - 1830 | | | | SPH5201 Control of Communicable Diseases* | SPH5205 Urban Outbreak Management* |
| 1830 - 1900 | | | | | |
| 1900 - 1930 | | | | | |
| 1930 - 2000 | | | | | |
| 2000 - 2030 | | | | | |
| 2030 - 2100 | | | | (Practical) SPH5201 Control of Communicable Diseases* | |

Academic Year: 2023/2024 Semester: 2

ABM5002: Advanced Biostatistics for Research (2 Unit)

Course Coordinator: Dr Shen Liang

| Week | Day | Date | Start Time (HHMM) 24 hour format | End Time (HHMM) 24 hour format | Description | Format | Lecturer | Venue |
|------|--------|-----------|-------------------------------------|-----------------------------------|--|---------|-------------------|--------------------------------|
| 2 | Friday | 26/1/2024 | 800 | 1000 | Introduction to statistics: Random variable; descriptive statistics, and data presentation | Lecture | Ms Wong Hung Chew | S17 Level 3 Lecture Theatre 34 |
| 3 | Friday | 2/2/2024 | 800 | 1000 | Introduction to statistics: Inferential statistics (estimation and hypothesis testing) | Lecture | Dr Shen Liang | S17 Level 3 Lecture Theatre 34 |
| 5 | Friday | 16/2/2024 | 800 | 1000 | Quantitative data analysis I: parametric test | Lecture | Ms Wong Hung Chew | S17 Level 3 Lecture Theatre 34 |
| 6 | Friday | 23/2/2024 | 800 | 1000 | Quantitative data analysis II: non-parametric test | Lecture | Ms Wong Hung Chew | S17 Level 3 Lecture Theatre 34 |
| 8 | Friday | 8/3/2024 | 800 | 1000 | Qualitative data analysis | Lecture | Ms Wong Hung Chew | S17 Level 3 Lecture Theatre 34 |
| 9 | Friday | 15/3/2024 | 800 | 1000 | Linear regression I | Lecture | Dr Shen Liang | S17 Level 3 Lecture Theatre 34 |
| 10 | Friday | 22/3/2024 | 800 | 1000 | Linear regression II | Lecture | Dr Shen Liang | S17 Level 3 Lecture Theatre 34 |
| 12 | Friday | 5/4/2024 | 800 | 1000 | Logistic regression | Lecture | Ms Wong Hung Chew | S17 Level 3 Lecture Theatre 34 |
| 13 | Friday | 12/4/2024 | 800 | 1000 | Survival analysis | Lecture | Dr Shen Liang | S17 Level 3 Lecture Theatre 34 |
| 14 | Friday | 19/4/2024 | 800 | 1000 | Common mistakes during statistical analysis and result interpretation | Lecture | Dr Shen Liang | S17 Level 3 Lecture Theatre 34 |
| 15 | Friday | 26/4/2024 | 1000 | 1200 | Final Examination | Exam | Dr Shen Liang | MD11-01-01 - CRC Auditorium |

Remark:
CA: 30%
Final Examination: 70%

Academic Year: 2023/2024 Semester: 2**ABM5101: Applied Immunology (4 Unit)****Course Coordinator: A/Prof Liu Haiyan**

| Week | Day | Date | Start Time (HHMM) 24 hour format | End Time (HHMM) 24 hour format | Description | Format | Lecturer | Venue |
|------|--------|-----------|-------------------------------------|-----------------------------------|--|----------------------|------------------------|--|
| 1 | Monday | 15/1/2024 | 1600 | 1800 | Overview of immunology: cells & structure of the immune system | Lecture | A/Prof Liu Haiyan | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 1 | Friday | 19/1/2024 | 1400 | 1600 | Innate immunity | Lecture | A/Prof Zhang Yongliang | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 2 | Monday | 22/1/2024 | 1600 | 1800 | Cytokines & chemokines | Lecture | Dr Ni Qianqian | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 2 | Friday | 26/1/2024 | 1400 | 1600 | MHC & antigen processing by the immune system | Lecture | A/Prof Liu Haiyan | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 3 | Monday | 29/1/2024 | 1600 | 1800 | Generation of antigen receptor diversity; T and B cell development | Lecture | Dr Low Jun Siong | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 3 | Friday | 2/2/2024 | 1400 | 1600 | CA1 | Continual Assessment | A/Prof Liu Haiyan | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 4 | Monday | 5/2/2024 | 1600 | 1800 | Immune effector cells & T cell subsets | Lecture | A/Prof Liu Haiyan | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 5 | Friday | 16/2/2024 | 1400 | 1600 | B cells, Immunoglobulin & complement | Lecture | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 6 | Monday | 19/2/2024 | 1600 | 1800 | Microbial infection & immunity | Lecture | Dr Chen Kaiwen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 6 | Friday | 23/2/2024 | 1400 | 1600 | Autoimmunity & immune deficiency | Lecture | A/Prof Liu Haiyan | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 8 | Monday | 4/3/2024 | 1600 | 1800 | CA2 | Continual Assessment | A/Prof Liu Haiyan | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 9 | Monday | 11/3/2024 | 1600 | 1800 | Journal Club Group Presentation #1 | Presentation | A/Prof Liu Haiyan | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 9 | Friday | 15/3/2024 | 1400 | 1600 | Journal Club Group Presentation #2 | Presentation | A/Prof Liu Haiyan | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 10 | Monday | 18/3/2024 | 1600 | 1800 | Journal Club Group Presentation #3 | Presentation | A/Prof Zhang Yongliang | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 13 | Friday | 12/4/2024 | 1200 | 1700 | Laboratory Practical 1 | Experiments | - | MD4 Level 4 LS Lab 9 |
| 14 | Friday | 19/4/2024 | 1200 | 1700 | Laboratory Practical 2 | Experiments | - | MD4 Level 4 LS Lab 9 |

Remark:

Assessments: CA1: 25%, CA2: 25%, Practical Quiz: 10%, Group Presentation: 40%

Academic Year: 2023/2024 Semester: 2

ABM5102: Vaccine Development & Its Modern Applications (4 Unit)

Course Coordinator: Dr Png Chin Wen

| Week | Day | Date | Start Time (HHMM) 24 hour format | End Time (HHMM) 24 hour format | Description | Format | Lecturer | Venue |
|------|----------|-----------|-------------------------------------|-----------------------------------|---|----------------------|----------------------|--|
| 4 | Tuesday | 6/2/2024 | 1000 | 1200 | Introduction to vaccinology & modern vaccines | Lecture | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 4 | Thursday | 8/2/2024 | 1200 | 1400 | Immunity & vaccines | Lecture | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 5 | Tuesday | 13/2/2024 | 1000 | 1200 | Overview of vaccines and infectious diseases | Lecture | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 5 | Thursday | 15/2/2024 | 1200 | 1400 | Vaccine adjuvants | Lecture | A/Prof Lu Jinhua | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 6 | Tuesday | 20/2/2024 | 1000 | 1200 | Overview of screening strategies for vaccine discovery | Lecture | Dr Chin Wei Xin | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 6 | Thursday | 22/2/2024 | 1200 | 1400 | Antigen engineering for vaccine development | Lecture | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 8 | Tuesday | 5/3/2024 | 1000 | 1200 | Mid-Term CA | Continual Assessment | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 8 | Thursday | 7/3/2024 | 1200 | 1400 | Patents and clinical trial databases as sources of research material | Tutorial | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 9 | Tuesday | 12/3/2024 | 1000 | 1200 | Reverse vaccinology - computational & informatics approaches to vaccine discoverv | Lecture | Dr Jaishree Tripathi | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 9 | Thursday | 14/3/2024 | 1200 | 1400 | Nanotechnologies in vaccines delivery methods | Lecture | Dr Tang Wei | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 10 | Tuesday | 19/3/2024 | 1000 | 1200 | Viral vectors in vaccine development | Lecture | Dr Benoit Malleret | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 10 | Thursday | 21/3/2024 | 1200 | 1400 | Pre-clinical models & validation requirements for vaccine development | Lecture | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 11 | Monday | 25/3/2024 | 1600 | 1800 | Vaccine failures | Tutorial | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 11 | Tuesday | 26/3/2024 | 1000 | 1200 | Social & economic impacts of vaccines | Tutorial | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 12 | Monday | 1/4/2024 | 1600 | 1800 | Pre-clinical models & validation requirements for vaccine development | Lecture | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |

| | | | | | | | | |
|----|----------|-----------|------|------|---|--------------|-----------------|--|
| 12 | Tuesday | 2/4/2024 | 1000 | 1200 | Vaccines and infectious disease: a clinical perspective | Lecture | Dr Jolene Oon | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 12 | Thursday | 4/4/2024 | 1200 | 1400 | Group Presentation preparation | Presentation | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 13 | Monday | 8/4/2024 | 1600 | 1800 | Vaccine development cycle | Lecture | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 13 | Tuesday | 9/4/2024 | 1000 | 1200 | Guest Lecture | Lecture | - | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 13 | Thursday | 11/4/2024 | 1200 | 1400 | Group presentations | Presentation | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 14 | Monday | 15/4/2024 | 1600 | 1800 | Group presentations | Presentation | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 14 | Tuesday | 16/4/2024 | 1000 | 1200 | Group presentations | Presentation | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |
| 14 | Thursday | 18/4/2024 | 1200 | 1400 | Course Summary | Lecture | Dr Png Chin Wen | MD4-02-03E - MD4 Microbiology Level 2 Seminar Room |

Remark:

Assessments: Mid-term CA (individual): 35%, Reflection journal/report (individual): 15 % (final due date is 16th April for last lecture on 9th April), Final report (group): 25 % (due date 26th April), Final presentation (group): 25 %

Academic Year: 2023/2024 Semester: 2

ABM5106: Anticancer Therapeutics (4 Units)

Course Coordinators: A/Prof Gautam Sethi & Dr Kong Li Ren

| Week | Day | Date | Start Time (HHMM) | End Time (HHMM) | Description | Format | Lecturer | Venue |
|------|----------|-----------|-------------------|-----------------|---|----------------------|-----------------------------|---------------------------------|
| | | | 24 hour format | 24 hour format | | | | |
| 1 | Tuesday | 16/1/2024 | 1400 | 1600 | Targeting Hallmark of cancer: Progresses over the past decade | Lecture | Dr Kong Li Ren | MD3-02-01 - Tiered Seminar Room |
| 1 | Thursday | 18/1/2024 | 1200 | 1400 | Patient stratification: solid and liquid biopsies | Lecture | Dr Kong Li Ren | MD3-02-01 - Tiered Seminar Room |
| 2 | Tuesday | 23/1/2024 | 1400 | 1600 | Guiding clinical therapy through cancer genomics – what have we learned from treatment of lung cancers? | Lecture | Dr Regina Hoo | MD3-02-01 - Tiered Seminar Room |
| 2 | Thursday | 25/1/2024 | 1200 | 1400 | Chemotherapeutic drugs used for cancer treatment | Lecture | A/Prof Gautam Sethi | MD3-02-01 - Tiered Seminar Room |
| 3 | Tuesday | 30/1/2024 | 1400 | 1600 | Drugs targeting oncogenic transcription factors I | Lecture | A/Prof Gautam Sethi | MD3-02-01 - Tiered Seminar Room |
| 3 | Thursday | 1/2/2024 | 1200 | 1400 | Drugs targeting oncogenic transcription factors II | Lecture | A/Prof Gautam Sethi | Online (Zoom) |
| 4 | Tuesday | 6/2/2024 | 1400 | 1600 | Molecular targeted therapies I | Lecture | Dr. Nurulhuda Binte Mustafa | MD3-02-01 - Tiered Seminar Room |
| 4 | Thursday | 8/2/2024 | 1200 | 1400 | Molecular targeted therapies II | Lecture | Dr. Nurulhuda Binte Mustafa | MD3-02-01 - Tiered Seminar Room |
| 5 | Thursday | 15/2/2024 | 1200 | 1400 | Reading week (discussion on presentation topics) | Presentation | - | MD3-02-01 - Tiered Seminar Room |
| 6 | Tuesday | 20/2/2024 | 1400 | 1600 | Revision I | Tutorial | Dr Kong Li Ren | MD3-02-01 - Tiered Seminar Room |
| 6 | Thursday | 22/2/2024 | 1200 | 1400 | Mid-term test | Continual Assessment | - | MD3-02-01 - Tiered Seminar Room |
| 8 | Tuesday | 5/3/2024 | 1400 | 1600 | Molecular targeted therapies III | Lecture | Dr. Nurulhuda Binte Mustafa | MD3-02-01 - Tiered Seminar Room |
| 8 | Thursday | 7/3/2024 | 1200 | 1400 | Cancer biomarkers: Diagnostic, prognostic and disease surveillance | Lecture | - | MD3-02-01 - Tiered Seminar Room |
| 9 | Tuesday | 12/3/2024 | 1400 | 1600 | Developments in HDAC Inhibitors for Cancer Therapeutics | Lecture | Dr. Alan Prem Kumar | Online (Zoom) |
| 9 | Thursday | 14/3/2024 | 1200 | 1400 | Pharmacokinetics and Toxicokinetics of anticancer drugs | Lecture | A/Prof Wang Lingzhi | MD3-02-01 - Tiered Seminar Room |
| 10 | Tuesday | 19/3/2024 | 1400 | 1600 | Early Phase Clinical Trials of anticancer drugs | Lecture | A/Prof Wang Lingzhi | MD3-02-01 - Tiered Seminar Room |
| 10 | Thursday | 21/3/2024 | 1200 | 1400 | Personalized drug therapies for cancer (TBC) | Lecture | Dr Joline Lim | MD3-02-01 - Tiered Seminar Room |

Academic Year: 2023/2024 Semester: 2

ABM5106: Anticancer Therapeutics (4 Units)

Course Coordinators: A/Prof Gautam Sethi & Dr Kong Li Ren

| Week | Day | Date | Start Time (HHMM) 24 hour format | End Time (HHMM) 24 hour format | Description | Format | Lecturer | Venue |
|------|----------|-----------|-------------------------------------|-----------------------------------|---------------------------------------|----------|--------------------------------------|---------------------------------|
| 11 | Tuesday | 26/3/2024 | 1400 | 1600 | Applications of AI for cancer therapy | Lecture | A/Prof Edward Kai-Hua Chow | MD3-02-01 - Tiered Seminar Room |
| 11 | Thursday | 28/3/2024 | 1200 | 1400 | 3D genome as a target for therapy | Tutorial | Dr Sriram Sridharan | MD3-02-01 - Tiered Seminar Room |
| 12 | Tuesday | 2/4/2024 | 1400 | 1600 | Presentation I | Tutorial | Dr Kong Li Ren / A/Prof Gautam Sethi | MD3-02-01 - Tiered Seminar Room |
| 12 | Thursday | 4/4/2024 | 1200 | 1400 | Presentation II | Tutorial | Dr Kong Li Ren / A/Prof Gautam Sethi | MD3-02-01 - Tiered Seminar Room |
| 13 | Tuesday | 9/4/2024 | 1400 | 1600 | Presentation III | Tutorial | Dr Kong Li Ren | MD3-02-01 - Tiered Seminar Room |
| 13 | Thursday | 11/4/2024 | 1200 | 1400 | Presentation IV | Tutorial | Dr Kong Li Ren | MD3-02-01 - Tiered Seminar Room |
| 15 | Thursday | 25/4/2024 | 1200 | 1400 | Final Examination | Exam | - | MD3-02-01 - Tiered Seminar Room |

Remark:

****Assessment:** Self-study presentation 20%
Mid-term test 30%
Final Examination 50%

Illustrative readings list

- (a) Compulsory reading:
1. Molecular Oncology: Causes of Cancer and Targets for Treatment. [Edward P Gelmann; Charles L Sawyers; F J Rauscher, III], Cambridge University Press, 2014.
 2. The biology of Cancer. [Robert A. Weinberg], Second edition, Taylor & Francis Group, 2014.
- (b) Supplementary reading:
1. Cancer Pharmacology: An Illustrated Manual of Anticancer Drugs. [Sampul Depan, Ashkan Emadi, and Judith E.Karp], Springer Publishing Company, 2019.
 2. Review articles will be provided for further readings.

Academic Year: 2023/2024 Semester: 2

MDG5207: Clinical Immunology and Immunotherapeutics (4 Units)

Course Coordinator: A/Prof Veronique Angeli

| Week | Day | Date | Start Time (HHMM) 24 hour format | End Time (HHMM) 24 hour format | Description | Format | Lecturer | Venue |
|------|----------|-----------|-------------------------------------|-----------------------------------|---|--------------|--------------------------|--------|
| 2 | Tuesday | 23/1/2024 | 1600 | 1800 | Introduction & overview of the immune system | Lecture | A/Prof Veronique Angeli | Online |
| 2 | Thursday | 25/1/2024 | 1600 | 1800 | Immune system from cradle to grave | Lecture | A/Prof Veronique Angeli | Online |
| 3 | Tuesday | 30/1/2024 | 1600 | 1800 | Animal models of immune related diseases | Lecture | Dr Png Chin Wen | Online |
| 3 | Thursday | 1/2/2024 | 1600 | 1800 | Immunological tools I: imaging of immune system | Lecture | Dr Ng Lai Guan | Online |
| 4 | Tuesday | 6/2/2024 | 1600 | 1800 | Immunological tools II: immunomonitoring | Lecture | Dr Jaishree Tripathi | Online |
| 4 | Thursday | 8/2/2024 | 1600 | 1800 | Cancer immunotherapy I - overview | Lecture | A/Prof Liu Haiyan | Online |
| 5 | Tuesday | 13/2/2024 | 1600 | 1800 | Cancer immunotherapy II - CAR-T | Lecture | Prof Nicholas Gascoigne | Online |
| 5 | Thursday | 15/2/2024 | 1600 | 1800 | Cancer immunotherapy III | Lecture | Prof Campana Dario | Online |
| 6 | Tuesday | 20/2/2024 | 1600 | 1800 | Cancer vaccines | Lecture | A/Prof Schwarz Herbert | Online |
| 6 | Thursday | 22/2/2024 | 1600 | 1800 | Monoclonal antibody therapy | Lecture | A/Prof Paul MacAry | Online |
| 8 | Tuesday | 5/3/2024 | 1600 | 1800 | Autoimmunity and immune therapies I | Lecture | A/Prof Lu Jinhua | Online |
| 8 | Thursday | 7/3/2024 | 1600 | 1800 | Autoimmunity and immune therapies II | Lecture | Dr Tay Sen Hee, Frank | Online |
| 9 | Tuesday | 12/3/2024 | 1600 | 1800 | Immunovirology I | Lecture | A/Prof Zhang Yongliang | Online |
| 9 | Thursday | 14/3/2024 | 1600 | 1800 | Immunovirology II | Lecture | Prof Antonio Bertoletti | Online |
| 10 | Tuesday | 19/3/2024 | 1600 | 1800 | Asthma & allergy I - Overview | Lecture | A/Prof Lina Lim | Online |
| 10 | Thursday | 21/3/2024 | 1600 | 1800 | Asthma & biologics II | Lecture | Dr Liew Mei Fong | Online |
| 11 | Tuesday | 26/3/2024 | 1600 | 1800 | Allergy III | Lecture | Dr Amelia Santosa | Online |
| 12 | Tuesday | 2/4/2024 | 1600 | 1800 | Microbiome I | Lecture | Dr Png Chin Wen | Online |
| 12 | Thursday | 4/4/2024 | 1600 | 1800 | Microbiome II | Lecture | Dr Lee Wei Jie, Jonathan | Online |
| 13 | Tuesday | 9/4/2024 | 1600 | 1800 | Transplantation Immunology | Lecture | A/Prof Paul MacAry | Online |
| 13 | Thursday | 11/4/2024 | 1600 | 1800 | Debate Session #1 | Presentation | A/Prof Veronique Angeli | Online |
| 14 | Tuesday | 16/4/2024 | 1600 | 1800 | Debate Session #2 | Presentation | A/Prof Veronique Angeli | Online |
| 14 | Thursday | 18/4/2024 | 1600 | 1800 | Debate Session #3 | Presentation | A/Prof Veronique Angeli | Online |

Remark:

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Academic Year: 2023/2024 Semester: 2
MDG5232 : Current Practices in Biotechnology (4 Units)
Course coordinator: Dr Alan Prem Kumar

| Week | Day | Date | Start Time | End Time | Description | Format | Lecturer | Venue |
|------|-----------|-----------|------------|----------|---|----------------------|--------------------|---------------------------------|
| 2 | Monday | 22/1/2024 | 1000 | 1200 | Introduction to Module | Lecture | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 2 | Wednesday | 24/1/2024 | 1000 | 1200 | Industry Lecture: 10X Genomics (Process Development in Biotech) | Lecture | Cai Wanpei | MD3-02-01 - Tiered Seminar Room |
| 3 | Monday | 29/1/2024 | 1000 | 1200 | Field Trip to NovogeneAIT | Tutorial | Alan Prem Kumar | NovogeneAIT |
| 3 | Wednesday | 31/1/2024 | 1000 | 1200 | Industry Lecture: MiRXES (miRNA IVD Development) | Lecture | Cheong Jit Kong | MD3-02-01 - Tiered Seminar Room |
| 4 | Monday | 5/2/2024 | 1000 | 1200 | Introduction to Drug Discovery & Biotherapeutics | Lecture | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 4 | Monday | 5/2/2024 | 1000 | 1200 | Group Reflections on Industrial Visit | Continual Assessment | Alan Prem Kumar | Submit to Alan Prem Kumar |
| 4 | Wednesday | 7/2/2024 | 1000 | 1200 | Group Role Play: Challenges and Progress in Personalized Medicine | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 5 | Wednesday | 14/2/2024 | 1000 | 1200 | Industry Lecture: Kyan Therapeutics (Drug Dose Optimization) | Lecture | Matsurah Rashid | MD3-02-01 - Tiered Seminar Room |
| 6 | Monday | 19/2/2024 | 1000 | 1200 | Industry Lecture: ACM Biolabs (Vaccines: To Vax or Not to Vax?) | Lecture | Loo Ser Yue | MD3-02-01 - Tiered Seminar Room |
| 6 | Wednesday | 21/2/2024 | 1000 | 1200 | Industry Lecture: Carmine Therapeutics (Advances in Drug Delivery) | Lecture | Le Thi Nguyet Minh | MD3-02-01 - Tiered Seminar Room |
| 8 | Monday | 4/3/2024 | 1000 | 1200 | Group Role Play: Next Generation therapeutics | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 8 | Wednesday | 6/3/2024 | 1000 | 1200 | Industry Lecture: Boehringer Ingelheim (Real World Evidence Data) | Lecture | Shikha Singh | MD3-02-01 - Tiered Seminar Room |
| 9 | Monday | 11/3/2024 | 1000 | 1200 | Industry Lecture: AstraZeneca (MSL: Opportunities and Challenges) | Lecture | Shreya Kar | MD3-02-01 - Tiered Seminar Room |
| 9 | Wednesday | 13/3/2024 | 1000 | 1200 | Industry Lecture: Arbele (Business Science in Clinical Development) | Lecture | Hay Hui Sin | MD3-02-01 - Tiered Seminar Room |
| 10 | Monday | 18/3/2024 | 1000 | 1200 | Industry Lecture: Axcynsis Therapeutics (How to Start a Company) | Lecture | Zou Bin | MD3-02-01 - Tiered Seminar Room |
| 10 | Wednesday | 20/3/2024 | 1000 | 1200 | Industry Lecture: LYFE Capital (How to Prepare for VC Fund Raising) | Lecture | Jack Chen | MD3-02-01 - Tiered Seminar Room |
| 11 | Monday | 25/3/2024 | 1000 | 1200 | Group Role Play: Methods and Applications for Real World Data | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |

Academic Year: 2023/2024 Semester: 2
MDG5232 : Current Practices in Biotechnology (4 Units)
Course coordinator: Dr Alan Prem Kumar

| Week | Day | Date | Start Time | End Time | Description | Format | Lecturer | Venue |
|------|-----------|-----------|------------|----------|--|----------------------|-----------------|---------------------------------|
| 11 | Wednesday | 27/3/2024 | 1000 | 1200 | Industry Lecture: MengNiu Dairy (IP and Patent in Biomedical Industry) | Lecture | Eugene Ho | MD3-02-01 - Tiered Seminar Room |
| 13 | Monday | 8/4/2024 | 1000 | 1200 | Group Elevator Pitch with Students' Peer Review (Pharma Business) | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 14 | Monday | 15/4/2024 | 1000 | 1200 | Group Elevator Pitch with Students' Peer Review (Pharma Business) | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 14 | Wednesday | 17/4/2024 | 1000 | 1200 | Group Elevator Pitch with Students Peer Review (Pharma Business) | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 17 | Wednesday | 8/5/2024 | 1000 | 1200 | Pharma Business Proposal Submission | Continual Assessment | Alan Prem Kumar | Submit to Alan Prem Kumar |
| 17 | Wednesday | 8/5/2024 | 1000 | 1200 | Students' Peer Review Submissions | Continual Assessment | Alan Prem Kumar | Submit to Alan Prem Kumar |

Remark:

The unique aspect of this module is that it allows students to meet successful members of the local biotechnology community. This course provides an opportunity to learn directly from industry leaders about commercially viable technologies, and about the job roles and their career transition from academia to industry. Students will experience the steps involved in taking a product from the research laboratory to the market, intellectual property rights and infringement, regulatory requirements, market competition and the use of real-world data in pharmaceutical industries. The course also provides students with an opportunity to "elevator pitch" their pharma business proposal to "stakeholders."

Academic Year: 2023/2024 Semester: 2

MDG5233: Current Topics in Drug Design and Development (4 Units)

Course Coordinator: Dr Alan Prem Kumar

| Week | Day | Date | Start Time (HHMM) 24 hour format | End Time (HHMM) 24 hour format | Description | Format | Lecturer | Venue |
|------|-----------|-----------|-------------------------------------|-----------------------------------|--|----------|--------------------|---------------------------------|
| 2 | Monday | 22/1/2024 | 1300 | 1500 | Introduction to Module | Lecture | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 2 | Wednesday | 24/1/2024 | 1300 | 1500 | Drug Discovery Process | Lecture | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 3 | Monday | 29/1/2024 | 1300 | 1500 | Introduction to Drug Design Small Molecules | Lecture | Edward Chow | MD3-02-01 - Tiered Seminar Room |
| 3 | Wednesday | 31/1/2024 | 1300 | 1500 | How to Identify Drug Candidates? | Lecture | Loo Lit Hsin | MD3-02-01 - Tiered Seminar Room |
| 4 | Monday | 5/2/2024 | 1300 | 1500 | Computer-aided Drug Discovery | Lecture | Richard Wong | MD3-02-01 - Tiered Seminar Room |
| 4 | Wednesday | 7/2/2024 | 1300 | 1500 | Mathematical Modeling in Drug Design and Evaluation | Lecture | Anet Anelone | MD3-02-01 - Tiered Seminar Room |
| 5 | Wednesday | 14/2/2024 | 1300 | 1500 | Pharmacokinetic Data Analysis Approaches | Lecture | Seng Kok Yong | MD3-02-01 - Tiered Seminar Room |
| 6 | Monday | 19/2/2024 | 1300 | 1500 | Drugs targeting G-protein coupled receptors | Lecture | Shabbir Moochhala | MD3-02-01 - Tiered Seminar Room |
| 6 | Wednesday | 21/2/2024 | 1300 | 1500 | Humanized Mouse for Human Diseases and Drug Testing | Lecture | Qingfeng Chen | MD3-02-01 - Tiered Seminar Room |
| 8 | Monday | 4/3/2024 | 1300 | 1500 | Group Critical Review: Genomics in Medicine | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 8 | Wednesday | 6/3/2024 | 1300 | 1500 | Introduction to Cancer Biotherapeutics | Lecture | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 9 | Monday | 11/3/2024 | 1300 | 1500 | Antibody Design & Development in Oncology | Lecture | Zou Bin | MD3-02-01 - Tiered Seminar Room |
| 9 | Wednesday | 13/3/2024 | 1300 | 1500 | Nanomedicine & Biologics | Lecture | Le Thi Nguyet Minh | MD3-02-01 - Tiered Seminar Room |
| 10 | Monday | 18/3/2024 | 1300 | 1500 | Antibody and Adoptive Immunotherapy | Lecture | Liu Haiyan | MD3-02-01 - Tiered Seminar Room |
| 10 | Wednesday | 20/3/2024 | 1300 | 1500 | Non-Coding RNA as Potential Drug Targets | Lecture | Michelle Tan | MD3-02-01 - Tiered Seminar Room |
| 11 | Monday | 25/3/2024 | 1300 | 1500 | Group Critical Review: Small Molecule Immuno-Modulators | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 11 | Wednesday | 27/3/2024 | 1300 | 1500 | Intellectual Property and Patents in the Biomedical Industry | Lecture | Eugene Ho | MD3-02-01 - Tiered Seminar Room |

Academic Year: 2023/2024 Semester: 2

MDG5233: Current Topics in Drug Design and Development (4 Units)

Course Coordinator: Dr Alan Prem Kumar

| Week | Day | Date | Start Time (HHMM) 24 hour format | End Time (HHMM) 24 hour format | Description | Format | Lecturer | Venue |
|------|-----------|-----------|-------------------------------------|-----------------------------------|--|----------------------|-----------------|---------------------------------|
| 13 | Monday | 8/4/2024 | 1300 | 1500 | Group Role Play: Novel Strategies for Discovery of Small Molecules Targeting RNA | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 14 | Monday | 15/4/2024 | 1300 | 1500 | Group Role Play: Synthetic Biology in Pharmaceuticals | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 14 | Wednesday | 17/4/2024 | 1300 | 1500 | Group Role Play: Emerging Applications of AI Tools in Drug Discovery | Tutorial | Alan Prem Kumar | MD3-02-01 - Tiered Seminar Room |
| 17 | Wednesday | 8/5/2024 | 1300 | 1500 | Shaping Drug Development Report Submission | Continual Assessment | Alan Prem Kumar | Submit to Alan Prem Kumar |
| 17 | Wednesday | 8/5/2024 | 1300 | 1500 | Students Peer Review Reports Submission | Continual Assessment | Alan Prem Kumar | Submit to Alan Prem Kumar |

Remark:

Drug discovery and development has evolved dramatically over recent decades, and the field continues to advance today. More sophisticated approaches and models are being developed, new technology is being incorporated into the entire pipeline of development, and exciting drug modalities continue to emerge. The purpose of the course is to introduce students to a range of existing and emerging therapy modalities including how compounds are identified and developed. Students will have an overview on the mechanism of drug action, drug delivery and metabolism, drug candidate selection, pharmacokinetic data analysis, computer-aided drug discovery, biologics design, and product patenting. More importantly, students will engage in "role-play" activity to enhance their knowledge with application drug discovery, develop concepts and enable them to collaborate as a team in the activity.