Subject Area

This syllabus is for PARTNERS applicants seeking to progress to the degrees of:

- MBBS Medicine A100

Aims

To allow students to demonstrate their potential to succeed in specified degree programmes by showing a grasp of entry level subject-specific knowledge, understanding, cognitive and subject-specific skills.

Learning Objectives

Newly qualified doctors must be able to apply biomedical scientific principles, methods and knowledge to medical practice and integrate these into patient care.

This must include principles and knowledge relating to anatomy, biochemistry, cell biology, immunology, microbiology, molecular biology, pathology, pharmacology and physiology.

This summer school aims to provide:

- An introduction to the characteristics and prominent features of eukaryotes, bacteria, viruses and prions
- An introduction to bacteria and bacterial infection
- An introduction the basic divisions of the immune system, the cells that comprises them, their basic structure and the functions that they carry out
- A more detailed review of innate and adaptive immunity and their roles in protection against infection
- An overview of the clinical features, diagnosis and treatment of pneumonia
- An introduction to using online article reference databases, specifically Ovid Medline; including use of subject headings, tactics for building searches, and how to actually locate articles after identifying them in results. This culminates in the short assessed exercise
- Clinical skills: performing a respiratory examination
- Practical session: an overview of anatomy of the respiratory system
- An introduction to antibiotics and the treatment of pneumonia
- Life as an infectious disease consultant. Opportunities in clinical medicine in the area of infectious disease, clinical or laboratory, academic opportunities, specialty options. An overview of the career options available in the area of infectious disease

Learning Outcomes

A good knowledge and understanding of …

- Demonstrate the ability to present a topic to an audience of peers
- Make informed decisions about the reliability of sources of information
- Describe the basic structure of a eukaryotic cell
- Describe the functions of eukaryotic organelles
- Describe the basic characteristics of prokaryotes, viruses and prions
- Describe the major structural features and components of bacterial cells
- Describe the major features of an acute bacterial infection
- Describe the difference between pathogenic and non-pathogenic bacteria
- Describe why some bacterial species are more pathogenic than others
- Describe the nature of bacterial virulence factors
- Describe the basic components of the immune system
- Describe the major cell types of the immune system, their functions and origins
- Describe the basic characteristics of the innate and adaptive immune responses
- Describe the basic characteristics of the lymphatic system
- Describe the basic anatomy of the respiratory system
- Explain the concept of the pleural cavity and describe its boundaries
- Describe the functional anatomy of the diaphragm
- Describe the pathological features of bacterial and viral (‘atypical’) pneumonias
- Describe the clinical features, diagnosis and treatment of pneumonia
- Demonstrate the ability to take a focused history from a person presenting with symptoms suggestive of respiratory disease
- Describe the principles of selective toxicity and the main targets for antimicrobial action in bacterial cells
- Describe the mechanism of action and clinical use of macrolide antibiotic drugs
- Describe the mechanism of action and clinical use of β-lactam antibiotic drugs
- Describe the basic anatomy of the respiratory system
- Identify the bony features of the chest wall
- Identify the major surface landmarks of the chest wall
- Explain the concept of the pleural cavity and describe its boundaries
- Describe the main anatomical features of the trachea, bronchial tree and lungs and relate them to their surface markings
- Describe the contents of an intercostal space
- Describe the thoracic cage (e.g. ribs and intercostal spaces), respiratory tract, lungs (including surface markings)
- Demonstrate the correct use of a stethoscope
- Perform a basic examination of the respiratory system and the lungs with the use of inspection, palpation, percussion and auscultation
- Recognise basic normal examination findings
- Apply appropriate infection prevention control measures when examining a patient
- Communicate sensitively and clearly using an ethical approach when examining a patient
- Demonstrate the ability to gain appropriate consent from a patient

The ability to apply this knowledge and critical understanding to...

- Work through and analyse case study problems
- Perform an examination of the respiratory system linking this to knowledge of respiratory system anatomy and physiology

Additional information:

- SimMan Simulation
  - Bridging the Gap between classroom learning and clinical application. This SimMan simulation provides an opportunity to assess and integrate your learning on pneumonia in a simulated hospital environment.

The ability to...
- Assess and collate information from a variety of sources and present reasoned conclusions in a team oral presentation

Additional information:

- Team Oral Presentation
  - Team work and communication skills are both of fundamental importance in effective medical practice. The aim of this exercise is to formatively assess your ability to work together in teams to evaluate and present a topic in a coherent, interesting, structured and logical manner. In teams you will produce a PowerPoint presentation on a specific respiratory tract infection.

**Competence in...**

- Demonstrate the correct use of a stethoscope
- Perform a basic examination of the respiratory system and the lungs with the use of inspection, palpation, percussion and auscultation
- Recognise basic normal examination findings
- Apply appropriate infection prevention control measures when examining a patient
- Communicate sensitively and clearly using an ethical approach when examining a patient
- Demonstrate the ability to gain appropriate consent from a patient

Additional information:

- Communication Skills: Respiratory History Taking: An overview of how to undertake an effective clinical history from a patient with suggestive respiratory disease
- Anatomy of the Respiratory System Dissecting Room Practical: A practical anatomy teaching session using both human or plasticine specimen samples of the Chest wall. Pleural cavities, Trachea and bronchi. Lungs and surface markings.
- Clinical Skills: Examination of the Respiratory System: An overview of how to perform a basic examination of the respiratory system in relation to inspection, palpation, percussion and auscultation. This examination will be performed on healthy human volunteers.

**Summer School Syllabus**

**Session 1: Introduction to PARTNERS Assessed Summer School and Case Release**
- Monday 1st July. 09:00-11:00, lecture.
- Session outline: Welcome and introduction to course. Case release

**Session 2: Forms of Life : An Introduction to Cell Biology**
- Monday 1st July. 11:00-12:00, lecture.
- Session outline: An introduction to the characteristics and prominent features of eukaryotes, bacteria, viruses and prions.
- Learning outcomes
  - Describe the basic structure of a eukaryotic cell
  - Describe the functions of eukaryotic organelles
  - Describe the basic characteristics of prokaryotes, viruses and prions
  - Describe the major structural features and components of bacterial cells

**Session 3: Introduction to Bacteria**
- Monday 1st July. 15:00-16:00. Lecture.
- Session outline: An introduction to bacteria and bacterial infection.
- Learning outcomes
  - Describe the major features of an acute bacterial infection
  - Describe the difference between pathogenic and non pathogenic bacteria
  - Describe why some bacterial species are more pathogenic than others
Session 4  Meet the PARTNERS
- Monday 1st July. 16:00-17:00. Social Event. Clinical Skills Medical School
- PARTNERS Students from Previous Cohorts
- Session outline: An opportunity to ask questions and discuss issues raised by the case and the associated teaching. This session will also provide an opportunity to raise questions about the forthcoming assessments.

Session 5  Introduction to the Immune System
- Tuesday 2nd July. 10:00-12:00. Lecture.
- Session outline: An introduction the basic divisions of the immune system, the cells that comprises them, their basic structure and the functions that they carry out.
- Learning outcomes
  - Describe the basic components of the immune system
  - Describe the major cells types of the immune system, their functions and origins
  - Describe the basic characteristics of the innate and adaptive immune responses
  - Describe the basic characteristics of the lymphatic system

Session 6  Pneumonia: Clinical Features and Investigations
- Tuesday 2nd July. 13:00-14:00. Lecture.
- Session outline: An overview of the clinical features, diagnosis and treatment of pneumonia.
- Learning outcomes
  - Describe the pathological features of bacterial and viral ('atypical') pneumonias
  - Describe the clinical features, diagnosis and treatment of pneumonia

Session 7  Anatomy of the Respiratory System
- Tuesday 2nd July. 16:00-17:00. Lecture.
- Session outline: Brief overview of structure and function of the respiratory system. The structure of the thoracic wall. The role of the diaphragm in respiration.
- Learning outcomes
  - Describe the basic anatomy of the respiratory system
  - Explain the concept of the pleural cavity and describe its boundaries
  - Describe the functional anatomy of the diaphragm

Session 8  Pharmacology of Antibiotics
- Wednesday 3rd July. 10:00-11:00. Lecture
- Learning outcomes
  - Describe the principles of selective toxicity and the main targets for antimicrobial action in bacterial cells
  - Describe the mechanism of action and clinical use of macrolide antibiotic drugs
  - Describe the mechanism of action and clinical use of β-lactam antibiotic drugs

Session 9  Communication Skills: Respiratory History Taking
- Wednesday 3rd July. 11:00-13:00. Lecture. Baddiley-Clark Building seminar room
- Session outline: An overview of how to undertake an effective clinical history from a patient with suggestive respiratory disease
- Learning outcomes
  - Demonstrate the ability to take a focused history from a person presenting with symptoms suggestive of respiratory disease

Session 10  Anatomy of the Respiratory System
- Wednesday 3rd July. 14:00-17:00. Practical – Clinical Skills Medical School

Learning outcomes
- Describe the basic anatomy of the respiratory system
- Identify the bony features of the chest wall
- Identify the major surface landmarks of the chest wall
- Explain the concept of the pleural cavity and describe its boundaries
- Describe the main anatomical features of the trachea, bronchial tree and lungs and relate them to their surface markings
- Describe the contents of an intercostal space
- Describe the thoracic cage (e.g. ribs and intercostal spaces), respiratory tract, lungs (including surface markings)

Session 11 Clinical Skills: Examination of the Respiratory System
- Thursday 4th July. 09:00-13:00. Practical - Clinical Skills Medical School
- Session outline: An overview of how to perform a basic examination of the respiratory system in relation to inspection, palpation, percussion and auscultation.
- It is compulsory to wear your name badge to this assessed session
- Learning outcomes
  - Demonstrate the correct use of a stethoscope
  - Perform a basic examination of the respiratory system and the lungs with the use of inspection, palpation, percussion and auscultation
  - Recognise basic normal examination findings
  - Apply appropriate infection prevention control measures when examining a patient
  - Communicate sensitively and clearly using an ethical approach when examining a patient
  - Demonstrate the ability to gain appropriate consent from a patient

Session 12 SimMAN Simulation: Pneumonia
- Thursday 4th July. 14:00-16:00. Practical - Clinical Skills Medical School
- Session outline: Bridging the Gap between class room leaning and clinical application. This simMAN simulation provides an opportunity to assess and integrate your learning on pneumonia in a safe hospital simulated environment.

Session 13 Pneumonia and Case Summary Q and A
- Thursday 4th July. 16:00-17:00. Lecture
- Session outline: An opportunity to assess your learning on pneumonia so far using group work and a OMBEA Q and A exercise. This session will also provide an opportunity to raise questions about the case and associated teaching, as well as the forthcoming formative assessments.

Session 14 Team Oral Presentations
- Friday 5th July. 10:00-11:00. Formative Assessment
- Session outline: Team work and communication skills are both of fundamental importance in effective medical practice. The aim of this exercise is to formatively assess your ability to work together in teams to present a topic in a coherent, interesting, structured and logical manner. In teams you will produce a PowerPoint presentation on a specific respiratory tract infection.
- Learning outcomes
  - Demonstrate the ability to present a topic to an audience of peers
  - Make informed decisions about the reliability of sources of information

Session 15 Formative Single Best Answer Assessment
- Friday 5th July. 12:00-13:00. Formative Assessment
- Session outline: Testing of knowledge and understanding is a fundamental requirement in effective medical practice. This exercise replicates the assessment process utilised throughout undergraduate and post graduate medical training. This single best answer examination is a purely formative exercise and should be used in self-reflection to assess underlying knowledge and understanding, identifying areas for improvement.

Session 16 Medicine Career Progression Q & A
- Friday 5th July. 14:00-15:00. Interactive Lecture
- Session outline: An opportunity to learn about career progression in medicine, from medical school, through to foundation training (F1 & F2) and beyond. This interactive session, hosted by our clinical teaching fellows will be a fantastic opportunity to gain a real life insight into the opportunities and challenges a career in medicine has to offer.

Session 17  Life of an Infectious Disease Consultant
- Friday 5th July. 15:00-16:00. Interactive Lecture
- Session outline: Life as an infectious disease consultant. Opportunities in clinical medicine in the area of infectious disease, clinical or laboratory, academic opportunities, specialty options. An overview of the career options available in the area of infectious disease.

**Activities for Personal Study**
- Study guide with learning outcomes, description of each session and recommended reading
- Online data base search (Pubmed etc)
- Recommended reading as above

**Resources**
- Kumar and Clark's Clinical Medicine, 9th Edition, P Kumar and M Clark
- Jawetz, Melnick and Adelberg's Medical Microbiology, 27th Edition, KC Carroll, SA Morse, TMietzner and S Miller
- Janeway's Immunobiology, 9th Edition, K Murphy

**Formative Piece of Work**

The PARTNERS MBBS formative assessment domain is split into three strands: You must complete all components of the formative assessment.

Failure to comply with formative assessment deadlines and associated professional behaviours may result in withdrawal of your PARTNERS offer.

More information and opportunities for clarification will be provided throughout the summer school.

1) **Team Oral Presentation**
   - Full details of the team oral presentation, including presentation title and marking criteria are provided in the PARTNERS Medicine Handbook. The Formative Team Oral Presentations will be held on Friday 5th July 10:00-11:00.

2) **Clinical Skills Practical**
   - To be assessed as part of Session 11: Clinical Skills: Examination of the Respiratory System on Thursday the 4th July.

3) **Formative Single Best Answer, Multiple Choice Question Examination**
   - This is a 1 hour single best answer formative examination. The pass threshold is determined by a modified Angoff technique (threshold depends on difficulty of questions). This Formative examination is to be held on Friday 5th July 12:00-13:00.