

RATM 624 Translational Physiology
Translational Medicine Program

Course Coordinator: Prof. Chatchai Muanprasat

N0	Date	Time	Topic	Lecturer
1	Thu., 3 Feb 22	09.00 – 12.00 am	Introduction to Physiology and Its Significance for Translational Research	Prof. Chatchai Muanprasat
2	Thu., 10 Feb 22	09.00 – 12.00 am	Cell Physiology and Body Fluid	Prof. Chatchai Muanprasat
3	Thu., 17 Feb 22	09.00 – 12.00 am	Neurophysiology	Lec. Nithi Asavapanumas
4	Thu., 24 Feb 22	09.00 – 12.00 am	Respiratory Physiology	Lec. Aekkacha Moonwiriyaakit
5	Thu., 3 Mar 22	09.00 – 12.00 am	Cardiovascular and Muscle Physiology	Lec. Titiwat Sungkaworn
6	Thu., 10 Mar 22	09.00 – 12.00 am	Gastrointestinal Physiology	Prof. Chatchai Muanprasat, Dr.Saravut Satitsri
7	Thu., 17 Mar 22	09.00 – 12.00 am	Endocrine Physiology	Lec. Nutthapoom Pathomthongtaweechai
8	Thu., 24 Mar 22	09.00 – 12.00 am	Renal Physiology	Lec. Promsuk Jutabha
9	Thu., 7 Apr 22	09.00 – 12.00 am	Inter-organ communication and integration	Prof. Chatchai Muanprasat, Lec. Titiwat Sungkaworn, Lec. Nithi Asavapanumas, Lec. Aekkacha Moonwiriyaakit, Lec. Promsuk Jutabha, Lec. Nutthapoom Pathomthongtaweechai
10	Thu., 21 Apr 22	09.00 – 12.00 am	Examination	Prof. Chatchai Muanprasat

Zoom Link: <https://zoom.us/j/96968696621?pwd=dkRmbWc5MTZ2VVR6SjZkbXlwanFXQT09>

Meeting ID: 969 6869 6621

Passcode: 917627

Instruction for instructors:

1. There is one Trans Med student enrolled this class in this year.
2. Instructor shall give material for self studies or leading questions for students to present or discuss in the class at least 1 week before class by uploading to google classroom or sending to course coordinator (chatchai.mua@mahidol.ac.th).

Example of leading questions

2.1) According to the provided review article

(<https://www.sciencedirect.com/science/article/pii/B9780123748492000045>), please explain the principle of patch clamp technique and how it can be useful for studying cell physiology?

Discuss benefit and limitation of this technique.

2.2.) Ying, a 45 year-old married woman, was diagnosed 4 years ago with diffuse interstitial pulmonary fibrosis. Since then she tires easily and has extreme shortness of breath when climbing the stairs or running. The information from recent physical examination of Ying was shown below.

Arterial blood gas at rest (room air): PaO₂ = 76 mmHg (normal 100 mmHg), PaCO₂ = 37 mmHg (normal 40 mmHg), % O₂ saturation = 97%

Arterial blood gas during exercise (room air): PaO₂ = 62 mmHg, PaCO₂ = 36 mmHg, % O₂ saturation = 90%

- a) How did the total lung capacity, functional residual capacity, residual volume, FEV₁/FVC and lung diffusing capacity change in Ying compared with normal healthy lung? What is the research methods for measuring this parameters
- b) In fibrosis, O₂ exchange in pulmonary capillary is considered perfusion or diffusion-limited? Why did Ying's PaO₂ decrease even further when performing exercise test?

3. Assessment

Observation from each class: Lecture 2 - 9 = 8 x 7.5 = **60 Marks**

Written examination **40 Marks**

Total **100 Marks**

Grading criteria:

80 - 100 = A

71 - 79 = B+

61 - 69 = B