### SUMMER SCHOOL 2024
MEDICAL SCHOOL,
UNIVERSITY OF CRETE

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<th>SUMMER SCHOOL ON APPLIED RESPIRATORY PHYSIOLOGY</th>
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<td>MEDICAL SCHOOL</td>
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<td>UNIVERSITY OF CRETE, CRETE, GREECE</td>
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<td>JULY 8-12 2024</td>
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Scientific coordinator: Katerina Vaporidi, Associate Professor of Intensive Care Medicine
Faculty of Medicine, University of Crete

Coordinating Department / Laboratory: DEPARTMENT OF INTENSIVE CARE, Medical School University of Crete

The course is for medical students who have completed the 3rd year of their studies and have taken courses on respiratory physiology and pathophysiology. The aim of the course is to provide an in-depth understanding of respiratory physiology and its implications in health, in exercise and extreme environments, disease, and mechanical ventilation. The hands-on sessions will allow students to visualize and comprehend the basic physiology, and familiarize them with the use of cardiopulmonary exercise testing, polysomnography. Finally using a lung simulator the students will learn the basic principles of setting and adjusting a mechanical ventilator to support a critically ill patient with respiratory failure. All courses will be given by experts in adult respiratory and intensive care medicine.

2 ECTS (European Credit Transfer and Accumulation System) Credits will be awarded.

**Learning objectives:**

1. Mechanics of breathing and its application in the pathophysiology of respiratory failure and mechanical ventilation
2. Pulmonary circulation, ventilation-perfusion relationships and Heart-Lung interactions
3. Exercise physiology and pathophysiology of limited exercise capacity
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<td>4.</td>
<td>Control of breathing and pathophysiology of Sleep-breathing disorders</td>
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<td>Basic principles of mechanical ventilation</td>
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**Who is it for:** The course is for undergraduate students after the 3rd year of medical school.

**Where and When:** University of Crete, School of Medicine, and University Hospital of Heraklion, Intensive Care Unit. July 8 – 12, 2024 (Monday to Friday)

**Educators:**

**Katerina Vaporidi:** Associate professor in Intensive Care Medicine, trained in adult respiratory medicine and Intensive Care medicine at the University Hospital of Heraklion. Dr. Vaporidi did her post-doc at the Anesthesia Center for Critical Care Research, at Massachusetts General Hospital. She has been working at the ICU of the University Hospital since 2010, and runs the CPET lab. Her research focus is on mechanical ventilation and mechanisms of lung injury. She has a special interest in teaching, with particular focus on mechanical ventilation, and participated as instructor in several national and international courses.

**Dimitris Georgopoulos:** Professor emeritus of the Medical School of the University of Crete, former head of the department of Intensive Care. Prof. Georgopoulos is a world renowned expert in respiratory physiology and mechanical ventilation, having published some of the landmark papers on the control of breathing and patient-ventilator interactions. Prof. Georgopoulos is also an excellent teacher, awarded the first “Pichoridis prize” for excellence in education at the University of Crete.

**Evangelia Akoumianaki:** Assistant professor in Intensive Care trained in adult respiratory medicine in Sotiria Hospital in Athens, and Intensive Care medicine at the University Hospital of Heraklion. She worked as researcher at the Hôpitaux universitaires de Genève, and as an intensivist at the Klinik für Anästhesiologie und Intensivmedizin, Georg-August-Universität Göttingen. She has been working at the ICU of the University Hospital since 2017. Her research focus is on mechanical ventilation and patient-ventilator interactions, and has participated as instructor in several national and international courses.

**Eumorfia Kondili:** Professor in Intensive Care Medicine, and head of the department of Intensive Care. Dr. Kondili trained in adult respiratory medicine and Intensive Care medicine at the University Hospital of Heraklion. She has worked as researcher at the Department of Respiratory Medicine King’s College Hospital, as Clinical fellow at the National Pulmonary Hypertension Service, Imperial College, London, and as observer fellow at the Department of Pulmonary and Critical Care Medicine, Health Center, Winnipeg, Manitoba, Canada. She has been working at the ICU of the University Hospital since 2005, and runs the sleep lab. Her research is focused on mechanical ventilation and sleep disorders of critically ill patients. She is a member of the e-learning committee of the European Society of Intensive Care Medicine, and editor of ESICM-academy courses on mechanical ventilation.
Course Program

Monday July 8, 10.00-14.00
Welcome - practical information about the summer school
Mechanics of Breathing
Ventilation
Oxygenation
Hands-on: Mechanics of breathing

Tuesday July 9, 10.00-14.00
Pulmonary circulation
Ventilation-perfusion matching
Heart - lung interactions
Hands-on: Heart-Lung interactions - visit to the ICU

Wednesday July 10, 10.00-14.00
Physiology of exercise
Exercise limitations in lung disease
Respiratory physiology in extreme environments
Hands-on: Cardiopulmonary Exercise Testing - visit to the CPET lab of the University Hospital

Thursday July 11, 10.00-14.00
Respiratory muscles
Respiratory failure
Basic principles of mechanical ventilation
Hands-on: Mechanical ventilation

Friday July 12, 10.00-14.00
Control of breathing
Responses to hypoxia and hypercapnia
Pathophysiology of OSAS
Hands-on: Sleep disorders - visit to the Sleep lab of the University Hospital

2 ECTS (European Credit Transfer and Accumulation System) Credits will be awarded

Social program
Welcome dinner on Monday July 8 (included in registration fees), day-trip in collaboration with other summer schools of the medical school (for a fee) on Saturday July 13.

Student selection process (maximum number of students, evaluation criteria):

Maximum number: 20 students
Selection procedure: evaluation of CV (completion of respiratory physiology and pathophysiology) and motivation letter by the course organisers.

Application procedure:
Online application by email to vaporidi@uoc.gr
Deadline: April 30th, 2024
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<th>Tuition costs per participant: 400 euros per student (includes welcome dinner but does not include travel, accommodation, and an optional excursion with lunch)</th>
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<td><strong>Additional comments:</strong> Accommodation and travel cost not included in the tuition fees; recommendations and contact with a local travel agency will be provided.</td>
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