

## PUBLIC HEALTH RESIDENCY (ML0186)

### 1. language

*English*

### 2. course contents

Coordinator: Prof. OLIVA ANTONIO

Academic Year: 2022/2023

Year Course: 5<sup>th</sup> year

Semester: Second

UFC: 9

Modules and lecturers:

- BIOETHICS AND MEDICAL HUMANITIES (ML0193) - 1 cfu - ssd MED/43

Prof. Dario Sacchini

- FORENSIC MEDICINE I (ML0192) - 2 cfu - ssd MED/43

Prof. Vincenzo Lorenzo Pascali, Antonio Oliva, Madea Burkhard

- FORENSIC MEDICINE II (ML0189) - 1 cfu - ssd MED/43

Prof. Francesca Brisighelli, Sabina Strano Rossi

- FORENSIC MEDICINE PROFESSIONAL TRAINING (ML0188) - 1 cfu - ssd MED/43

Prof. Riccardo Rossi, Antonio Oliva, Sabina Strano Rossi

- OCCUPATIONAL HEALTH (ML0190) - 2 cfu - ssd MED/44

Prof. Marco Marazza, Nicola Magnavita, Umberto Moscato

- OCCUPATIONAL MEDICINE PROFESSIONAL TRAINING (ML0187) - 1 cfu - ssd MED/44

Prof. Ivan Borrelli, Paolo Emilio Santoro, Nicola Magnavita, Umberto Moscato, Adele Anna Telemann

- PUBLIC HEALTH II (ML0191) - 1 cfu - ssd MED/42

Prof. Gianfranco Damiani, Umberto Moscato

### 3. bibliography

#### *Bioethics and Medical Humanities:*

All of the documentation presented in classroom, including PPTx, PDF, videos, movies, URL, websites, etc. should be considered learning material and it will be made available to the students.

The reference textbooks for a more systematic learning is:

- Jonsen AR, Siegler M, Winslade WJ. *Clinical Ethics. A Practical Approach to Ethical Decisions in Clinical Medicine*. New York: McGraw Hill Education, 2015."

Although students are encouraged to consolidate and elaborate the learning from classroom material into more systematically treated textbook chapters, the acquisition of the textbook should be considered optional.

Further literature (papers, documentation, etc.) will be provided by the lecturer.

#### *Forensic Medicine I and II:*

All of the documentation presented in classroom, including PPTx, PDF, videos, movies, URL, websites, etc. should be considered mandatory learning material and it will be made available to the students.

The reference textbooks for a more systematic learning are:

- "Pekka Saukko & Bernard Knight. *Knight's Forensic Pathology, Fourth Edition*, CRC Press – Taylor & Francis Group, 2015"

- "Barry Levine ed., *Principles of Forensic Toxicology, fourth edition*, AACCPress, 2016"

Although students are encouraged to consolidate and elaborate the learning from classroom material into more systematically treated textbook chapters, the

acquisition of the textbooks should only be considered optional.

### Occupational Health:

All of the documentation presented in classroom, including PPTx, PDF, videos, movies, URL, websites, etc. should be considered mandatory learning material and it will be made available to the students.

The reference textbook for a more systematic learning is:

- "Magnavita N. *Occupational health. Lessons, EDUCatt Milano 2019*, 182 pp.

Although students are encouraged to consolidate and elaborate the learning from classroom material into more systematically treated textbook chapters, the acquisition of the textbook should only be considered optional.

Furthermore, in-depth studies can be carried out in reading and studying the following books, textbooks chapter and articles listed in a non-exhaustive way:

- Ladou Joseph, Harrison Robert. *Current Diagnosis & Treatment: Occupational and Environmental Medicine. 5th Edition. Mc Graw Hill-Lange Medical Books, 2017". Occupational health - A manual for primary health care workers. Who-Em/Och/85/E/L Distribution: Limited, 2001. Available at: [http://www.who.int/occupational\\_health/regions/en/oehemhealthcareworkers.pdf?ua=1](http://www.who.int/occupational_health/regions/en/oehemhealthcareworkers.pdf?ua=1).*
- Alli, B.O. *Fundamental Principles Of Occupational Health And Safety - International Labour Office • Geneva, 2008*. Available at: [http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms\\_093550.pdf](http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_093550.pdf).
- Magnavita N, Tripepi G, Di Prinzio RR. Symptoms in Health Care Workers during the COVID-19 Epidemic. A Cross-Sectional Survey. *Int J Environ Res Public Health*. 2020 Jul 20;17(14):E5218. doi: 10.3390/ijerph17145218.
- Chirico F, Sacco A, Bragazzi NL, Magnavita N. Can Air-Conditioning Systems Contribute to the Spread of SARS/MERS/COVID-19 Infection? Insights from a Rapid Review of the Literature. *Int J Environ Res Public Health* 2020; 17(17), 6052; <https://doi.org/10.3390/ijerph17176052>.
- Magnavita N, Sacco A, Nucera G, Chirico F. First aid during the Covid-19 pandemic. (Editorial). *Occup Med (Lond)*, 2020 doi:10.1093/occmed/kqaa148. Magnavita N, Sakowski P, Capitanelli I, La Milia DI, Moscato U, Poscia A, Ricciardi W. Health promotion for the aging workforce in Poland. *Int J Occup Med Environ Health*. 2018 Dec 20;31(6):753-761. doi: 10.13075/ijomeh.1896.01207. Epub 2018 Aug 3. PubMed PMID: 30156218.
- Poscia A, Moscato U, La Milia DI, Milovanovic S, Stojanovic J, Borghini A, Collamati A, Ricciardi W, Magnavita N. Workplace health promotion for older workers: a systematic literature review. *BMC Health Serv Res*. 2016 Sep 5;16 Suppl 5:329. doi: 10.1186/s12913-016-1518-z. Review. PubMed PMID: 27609070; PubMed Central PMCID: PMC5016729.
- Capolongo S, Rebecchi A, Dettori M, Appolloni L, Azara A, Buffoli M, Capasso L, Casuccio A, Oliveri Conti G, D'Amico A, Ferrante M, Moscato U, Oberti I, Paglione L, Restivo V, D'Alessandro D. Healthy Design and Urban Planning Strategies, Actions, and Policy to Achieve Salutogenic Cities. *Int J Environ Res Public Health*. 2018 Nov 29;15(12). pii: E2698. doi: 10.3390/ijerph15122698. PubMed PMID: 30501119; PubMed Central PMCID: PMC6313765.
- Borghini A, Poscia A, Bosello S, Telemann AA, Bocchi M, Iodice L, Ferraccioli G, La Milia DI, Moscato U. Environmental Pollution by Benzene and PM(10) and Clinical Manifestations of Systemic Sclerosis: A Correlation Study. *Int J Environ Res Public Health*. 2017 Oct 26;14(11). pii: E1297. doi: 10.3390/ijerph14111297. PubMed PMID: 29072596; PubMed Central PMCID: PMC5707936.
- Moscato U, Poscia A, Gargaruti R, Capelli G, Cavaliere F. Normal values of exhaled carbon monoxide in healthy subjects: comparison between two methods of assessment. *BMC Pulm Med*. 2014 Dec 16;14:204. doi: 10.1186/1471-2466-14-204. PubMed PMID: 25515007; PubMed Central PMCID: PMC4275957.

### Public Health II:

All of the documentation presented in classroom, including PPTx, PDF, videos, movies, URL, websites, etc. should be considered mandatory learning material and it will be made available to the students. The reference textbooks for a more systematic learning are:

- "Charles Guest, Walter Ricciardi, Ichiro Kawachi, Iain Lang. *Oxford Handbook of Public Health Practice*. Oxford University Press, 2020 fourth edition"
- "Wallace/Maxcy-Rosenau-Last. *Public Health & Preventive Medicine*. McGraw Hill, 2021, 16thEd".

Although students are encouraged to consolidate and elaborate the learning from classroom material into more systematically treated textbook chapters, the acquisition of the textbook should only be considered optional. Furthermore, in-depth studies can be carried out in reading and studying the following articles listed in a non-exhaustive way:

- Lee, Kelley. Globalisation: what is it and how does it affect health? *Medical Journal of Australia* 180.4 (2004): 156-158.
- Labonté R. (2015). Globalization and Health. *International Encyclopedia of the Social & Behavioral Sciences*, 198–205. <https://doi.org/10.1016/B978-0-08-097086-8.14022-X>.
- Filippini T, Vinceti SR. Italian National Recovery and Resilience Plan: a Healthcare Renaissance after the COVID-19 crisis?. *Acta Biomed*. 2021;92(S6):e2021463. 2021 Nov 17. doi:10.23750/abm.v92iS6.12339.
- Marshall M, Øvretveit J Can we save money by improving quality? *BMJ Quality & Safety* 2011;20:293-296.
- Blumenthal D. Quality of Health Care Part 1: Quality of Care — What is it? *N Engl J Med*. 1996 Sep 19;335(12):891-4.

- Brook RH, McGlynn EA, Cleary PD. Quality of Health Care. Part 2: Measuring Quality of Care. N Engl J Med. 1996 Sep 26;335(13):966-70.
  - Chassin MR. Quality of Health Care. Part 3: Improving the Quality of Care. N Engl J Med. 1996 Oct 3;335(14):1060-3.
  - Blumenthal D. Quality of Health Care. Part 4: The Origins of the Quality-of-care Debate. N Engl J Med. 1996 Oct 10;335(15):1146-9.
  - Berwick DM. Quality of Health Care. Part 5: Payment by Capitation and the Quality of Care. N Engl J Med. 1996 Oct 17;335(16):1227-31.
  - Blumenthal D, Epstein AM. Quality of Health Care. Part 6: The Role of Physicians in the Future of Quality Management. N Engl J Med. 1996 Oct 24;335(17):1328-31.
  - Scally, Gabriel, and Liam J. Donaldson. "Clinical governance and the drive for quality improvement in the new NHS in England." Bmj 317.7150 (1998): 61-65.
  - Primary health care - WHO;
  - Six elements of integrated primary healthcare - Australian Family Physician (Volume 45, Issue 3, March 2016) Frieden T. R. (2014).
  - WHO EMRO | Health promotion and disease prevention through population-based interventions, including action to address social determinants and health inequity | Public health functions.
- And all the following articles, consisting of international reviews on the topics of the lessons, all accessible for free and viewable on the web's databases:
- Lee K. The impact of globalization on public health: implications for the UK Faculty of Public Health Medicine. J Public Health Med. 2000 Sep;22(3):253-62. doi: 10.1093/pubmed/22.3.253. PMID: 11077894.
  - Murray C.J., Frenk J. A framework for assessing the performance of health systems. Bulletin of the World Health Organization, 78 (6):717–31 (2000).
  - Garattini, L., Badinella Martini, M. & Zanetti, M. The Italian NHS at regional level: same in theory, different in practice. Eur J Health Econ 23, 1–5 (2022). <https://doi.org/10.1007/s10198-021-01322-z>.
  - Specchia, M.L., Di Pilla, A., Sapienza, M., Riccardi, M.T., Cicchetti, A., Damiani, G., Instant Report Group. Dealing with COVID-19 Epidemic in Italy: Responses from Regional Organizational Models during the First Phase of the Epidemic. Int. J. Environ. Res. Public Health 2021, 18, 5008. <https://doi.org/10.3390/ijerph18095008>.
  - Weaver R.R. "Reconciling evidencebased medicine and patientcentred care: defining evidencebased inputs to patientcentred decisions." Journal of evaluation in clinical practice (2015).
  - Majeed A, Lester H, Bindman A B. Improving the quality of care with performance indicators BMJ 2007; 335 :916 doi:10.1136/bmj.39337.539120.AD.
  - Price, A.I., Djulbegovic, B., Biswas, R. and Chatterjee, P. (2015), Evidence-based medicine meets person-centred care. J Eval Clin Pract, 21: 1047-1051. <https://doi.org/10.1111/jep.12434>.
  - Batalden PB, Davidoff F. What is "quality improvement" and how can it transform healthcare? BMJ Quality & Safety 2007;16:2-3.
  - Damiani, Gianfranco, Arandelovic, Andelija 2018/03/15 "PRIMARY HEALTH CARE: MEANING AND OPPORTUNITIES" 10.5633/amm.2018.0119, Acta Medica Medianae.
  - Six components necessary for effective public health program implementation. American journal of public health, 104(1), 17–22. <https://doi.org/10.2105/AJPH.2013.301608>.

#### 4. learning objectives

*Knowledge and understanding* – The integrate course is geared toward the acquisition of the following knowledge and understanding:

- Be aware of the global perspective of Public Health to improve the way the Healthcare System works
- Define the features of what an Healthcare System is
- Be aware of the existing Healthcare System models and explicit the main differences among them
- Know the key features of the Italian National Healthcare System (INHS)
- Be aware of the complexity of quality of care and understand the reasons of multidimensional approach
- Foster a clear understanding of the conceptual framework for quality of care assessment

Be aware of the modern role of the health care professionals as gatekeeper among technical, ethical, and economical issues  
Describe the evolving concepts of primary health care and primary care with the perspectives of integration and patient engagement  
Examine the fundamental aspects of Prevention  
Understand the tools and methods for building an effective prevention program  
Prepare students to understand and correlate the sources of environmental (outdoor-indoor) exposure risk and environmental or anthropic emergency with health effects and the clinical and surgical consequences also through an appropriate therapeutic diagnostic path  
Students must possess knowledge and understanding of the interaction between man and the environment in work, of medical, psychosocial, ethical and legislative issues concerning work environments and the ability to develop and / or apply original ideas in a context of study or accurate analysis, based on a systematic and critically aware understanding of knowledge. They must know the legal and political determinants of occupational health and safety in different countries of the world  
Prepare students to become medical science professionals for life by developing a base of analytical skills and critical thinking that will prepare them to understand the role of forensic science applied to the principles of law  
Foster a clear understanding of the conceptual and methodological framework for addressing “bedside” ethical issues, also considering the complexity of current clinical setting  
Achieve analytic and critical thinking as well as basic skills for managing Clinical Ethics methodology  
Acquire a comprehensive knowledge of the principal ethical issues in “end-of-life” setting as well as of health advanced directives/shared decision making

*Applying knowledge and understanding* – Students will learn how to apply and link knowledge to understanding and apply it in the management of the most common Public Health scenarios in emergency contexts, planning and management of health facilities and organizations, occupational activities also related to recognize in workers the first signs of pathologies that could be caused or aggravated by exposure to occupational risk factors and provide them with indications on preventive measures and health promotion to prevent exposure to carcinogens, toxic and harmful, own criticalities of the relationship of jurisprudence and forensic medicine and the bioethical implications that all this entails in the principle of the one/global health framework.

*Making judgements* – Students will develop skills on how to express opinions independently and make decisions when dealing with public health issues and people management in order to prevent risk situations and diseases in different environmental, organizational, bioethical and regulatory scenarios. More specifically, students will learn to develop differential critical skills for the elaboration and management of systems that involve decision trees supporting some hypotheses, making some less likely and instead offering support to others. Students will therefore develop the ability to strategize the approach to arrive at a final decision and diagnosis or the choice of different management, preventive and therapeutic strategies.

*Communication skills* – Students will acquire the skills and the ability to integrate knowledge and manage the complexity of the interaction environment, work, organization, regulation with person and his health in the context of multidisciplinary teams. In addition, students will be able to communicate prevention actions, diagnostic-clinical decisions and how to focus on patient-centered and value-based healthcare. Students will also learn how to present and contextualize risks and benefits of different and modern preventive, occupational and forensic techniques mediated by a bioethical vision, including reflection on social and ethical responsibilities related to the application of their knowledge and judgments, for preventive approaches and innovative strategies. Students will be able to clearly and unambiguously communicate their conclusions, as well as the underlying knowledge and reasoning, to specialist and non-specialist interlocutors in preventive, occupational and forensic medicine; in particular, they must be able to dialogue with the competent doctors, the practitioner, the coroner and the other specialists in care settings.

*Learning skills* – Students will develop and mature skills on how to consolidate and extend the breadth and depth of knowledge and learn on continuing medical education and how to stay on top of the rapidly evolving field of public health and biomedical science, including relationship to the continuing evolution of technology and the associated professional risks. To this end, students will master research and evidence-based assessment tests from textbooks, articles, as well as using online platforms, programs and web-based applications.

## 5. PREREQUISITES

The students are requested to have background knowledge of anatomy, physiopathology and of common clinical signs and symptoms, and an understanding of the application of the most common epidemiological criteria, of the most widespread medical diagnoses together with the basic clinical pharmacology and toxicology. It is a prerequisite to also being able to describe principal diagnostic techniques and therapeutic options. As a general prerequisite, the students must have passed all the exams of the previous years.

## 6. teaching methods

The course will consist of traditional classroom lectures, case-based learning, interactive learning, E-learning and self-study along with autonomous and tutor-guided professional training in the diverse laboratory and clinical units.

*Conoscenza e capacità di comprensione/Knowledge and understanding* – During classroom teaching the students will be stimulated to recapitulate the formerly acquired individual knowledges to go above and beyond and translate them into a new level of integration.

*Conoscenza e capacità di comprensione applicate/Applying knowledge and understanding* – In class, but even more specifically during the professional training, the students will be facilitated in the application of such level of integrative understanding to a complete and organic disentangling of uniquely complex and interconnected public health scenarios.

*Autonomia di giudizio/Making judgements* – Either in class but also more specifically during vocational training, students will be asked to proactively participate in the public health decision-making process at every stage of the epidemiological, diagnostic and therapeutic management of the most common health scenarios. Students will be encouraged to confront real cases and with people or patients directly when indicated.

*Abilità comunicative/Communication skills* – Students will be requested to play an active role during classroom teaching with questions and answers as well as in role-playing scenarios. During the professional training activities the students will be stimulated to present and discuss real public health cases, to use the most appropriate scientific language and to nurture communication abilities in direct connections with persons or patients.

*Capacità di apprendere/Learning skills* – Above and beyond the classroom teaching and the hands-on experience in the professional training, the students will be requested to take any opportunity for a more in-depth and systematic study of any of the relevant didactic content.

## 7. other informations

None

## 8. methods for verifying learning and for evaluation

The exam will be based on a cumulative written test with multiple-choice questions concerning all teaching modules. The test is comprised of a total of 31 MCQ with a maximum time allocated from 30 to 60 minutes.

Some MCQs will explore specific knowledge through the application of a traditional format, although other MCQs will be introduced by a public health scenario that can include a series of questions as the case evolves in subsequent steps mimicking the epidemiological reality, programming health, bioethics, diagnostic and forensic employment

The number of MCQ will be proportional to the number of CFU/hours of each teaching module and professional training, with a distribution by discipline based on total CFU (8). Altogether, the final test will include:

- o 5 MCQ for **Public Health II**

- o 7 MCQ for **Occupational Health**
- o 5 MCQ for **Forensic Medicine I**
- o 5 MCQ for **Forensic Medicine II**
- o 5 MCQ for **Bioethics and medical humanities**
- o 2 MCQ for **Occupational Medicine Professional Training**
- o 2 MCQ for **Forensic Medicine Professional Training**

One and only will be the correct choice for each quiz.

To pass, the student should reach a threshold of correct answers above 50% in each discipline. More specifically, the thresholds will be the following:

- Public Health II at least 3 correct (60%),
- Occupational Medicine I & II at least 4 correct (57%),
- Forensic Medicine I at least 3 correct (60%),
- Forensic Medicine II at least 3 correct (60%),
- Clinical Ethics at least 3 correct (60%)
- Professional Training Occupational Medicine at least 1 correct (50%)
- Professional Training Forensic Medicine at least 1 correct (50%)

The final vote will be derived based on the number of correct answers along the scheme below:

18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	30 L

## 9. program

### **Bioethics and Medical Humanities**

- o Clinical Ethics: definition, methodologies/procedures, case-studies
- o "End-of-Life" issues:
  - Euthanasia
  - Overtreatment
  - Proportionality/futility of treatments/care
  - DNR order
  - Vegetative state
  - Palliative care and sedation
  - (adult/neonatal/pediatric) ICU setting
  - Neurodegenerative disorders
  - Nutrition and hydration, living will/health advanced directives/shared decision planning
- o Organ transplants

### **Forensic Medicine I & II**

The program will cover the main aspects of:

- o Forensic medicine:
  - Introduction to forensic medicine
  - Elementary legal concepts
  - Causality theory
  - Imputability
  - Personal Injury
  - Homicide and Suicide
  - Medical liability (Law No. 24/2017)
- o Forensic pathology:
  - Definition, ascertainment, and pathophysiology of death
  - Pathology of wounds
  - Gunshot and explosion deaths
  - Suffocation and asphyxia
  - Fatal pressure on the neck

- Immersion deaths
- Transportation injuries
- o Forensic genetics
- o Forensic toxicology:
  - poisoning diagnosis
  - driving under the influence
  - workplace drug testing
  - Drug-facilitated Sexual Assaults
- o Practical in forensic genetic and toxicology laboratories, group activities

### **Occupational Health**

- o Occupational Health, History and Principles
- o Occupational Health Surveillance
- o Health surveillance in current practice
- o Industrial Hygiene
- o Hazardous Workers
- o Biological Risk. Bloodborne
- o Ergonomics
- o Environmental Complaints and Air Quality Concerns
- o Climate change, Work Environments and Occupational Risks
- o Occupational Gender Medicine and Personalized Health Surveillance
- o Occupational Lung Disease
- o Silica and Lead
- o Work-Related Stress and Telework-Related Stress
- o Practical Activities-Medical Inspection of the Workplace
- o Medical Examination. How to visit a future Doctor
- o Data Collection: Why is the relationship between Health and Work so important for the Patient Care?
  - *A limited number of students will be admitted to attend, on request, the practical activities of occupational medicine, in particular: medical check-ups in the workplace, professional history collection, analysis of epidemiological data, discussion of clinical cases, journal clubs. Teachers are available for individual interviews with students, to be scheduled outside of class hours, aimed for example at clarifying problematic aspects related to the study of the theoretical program.*

### **Public Health II**

- o Globalization, Global trends in health care and determinants of health
- o Health care systems: definition, functions and different models
- o The Italian National Health System (INHS): structure, organizational features, levels of responsibility, assessment
- o The COVID-19 epidemics in Italy: national and regional responses Italian National Recovery and Resilience Plan (NRRP) definition and implementation
- o Definitions of Quality of Care
- o Domains of Quality of Care
- o Assessments Point of View
- o Methods of Evaluation (Implicit and Explicit Methods)
- o Basic Measurement
- o Need for New Approach to Quality Improvement
- o Methods and Tools for Quality Improvement and Better Outcomes
- o Primary Care: definition, basics of measurement, integrated perspective
- o Prevention: definition, levels and types, economic sustainability, how to build a prevention program