Open Course Catalog

Courses that partner universities intend to open to CIVIS students, in an online format, allowing their attendance based on the specific criteria established by the course responsible.

In the category of open courses can be included any course from the CIVIS universities curricula, at any educational level (BA/MA/PHD), taking place in an online environment, and using the ICT tools for

Title	Faculty/Dicipline	Level of Study	Language (one or more)	Credit points (ECTS)	Brief description	Duration of the course (no. of hours/ w eeks etc.)	Period of the course	Limited attendance	Registration	Prerequisites	Contact information	Homepage of Department/Chair
Applied pathology III - Diseases of the digestive system, endocrine system and metabolism	Medicine and Surgery	Bachelor	English	5	Definition and classification of diabetes mellitus, type 1 diabetes, type 2 diabetes and other specific types, chronic complications of diabetes (micro and macroangiopatic) acute complications , metabolic syndrome, obesity and thinness, dyslipidemia with reference, especially, to the patient with diabetes. Pathophysiology, pathogenesis, clinical presentation, differential diagnosis, therapy of endocrinological diseases of diabetological interest.	40 h	II semester	No	No	not necessary	antonio.siena@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/30893/home
Applied pathology III - Diseases of the digestive system, endocrine system and metabolism	Medicine and Surgery	Bachelor	English	7	At the end of the teaching program the student will be able to Integrate the etiological and pathophysiological mechanisms of the diseases of the digestive tract with the clinical presentation. Analyse symptoms, signs, and investigations in orderly diagnostic algorithms. Comprehend the differences, similarities, and interplay between functional and organic gastrointestinal diseases. Comprehend the reciprocal interaction between environment, psychological status, and gastrointestinal function and diseases. Deal with patients' suffering for chronic gastrointestinal diseases.At the end of the teaching program the student will be able to integrate the etiological and pathophysiological mechanisms of pancreatic diseases with their clinical presentation Integrate the etiological and pathophysiological mechanisms of biliary tract diseases with their clinical presentation, analyse symptoms, signs, investigations and natural history in acute and chronic hepatitis with mentions on interventions, describe the etiology and pathophysiological mechanisms of liver cirrhosis and its complications, with indications on diagnostic algorithms, prevention and therapies, describe the diagnostic algorithms of liver masses with indications on the staging/treatment strategies for patients with hepatocellular carcinoma and cholangiocarcinoma. Knowledge (Gastroenterology): Gastroduodenal Diseases Helicobacter pylori infection, Acute and Chronic gastritis and gastropathies, Peptic ulcer, Gastric tumors Intestinal Diseases Maldigestion and malabsorptionm, Celiac Disease, Inflammatory Bowel Diseases, Diverticular Disease, Rectocolonic tumors Functional Gastrointestinal Diseases Dyspepsia, Irritable Bowel Syndrome, Constipation, Diarrhea Anorectal Diseases Fecal Incontinence Acute and chronic pancreatitis. Pancreatic cancer Acute and chronic hepatitis Liver cirrhosis and its complications Non malignant biliary tract diseases Hepatocellular carcinoma and other liver masses Liver transplantation in the adult recipient Emergencies in gastroenterology: digestive bleeding and intestinal occlusion	56 h	II semester	No	No	not necessary	flaminia.ferri@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/30893/home
DISEASES OF THE SENSORY ORGANS	Medicine and Dentistry and Pharmacy and Medicine	Students of Fifth year	English	8	The main objective of the Course of the diseases of the sensory organs is to train doctors and to implement the knowledge in ORL, visual apparatus, Maxillofacial Surgery and Oral Diseases							
Diseases of the Nervous System	Medicine and Surgery	Bachelor	English	5	Motor system and sensory system, cranial nerves, emg/eng/ep and eeg, neuroimaging, movement disorders, coma and disorders of consciousness, epilepsy and sleep disorders, brain tumors, neuromuscular disorders, cognitive functions and dementia, stroke, liquor, multiple sclerosis, meningitis and encephalitis, traumatic brain injury and hydrocephalus, neurosurgery of the spinal cord.	20 h	I semester	no	no	not necessary	alfredo.berardelli@uniroma1.it	https://elearning.uniroma1.it/enrol/index.php?id=6645
Emergency Medicine and Surgery	Medicine and Surgery "F" International Medical School	University Degree	English	10	The course aims to provide students with the theoretical and practical tools for managing the main medical emergencies (acute respiratory failure, acute myocardial ischemia, acute neurological syndromes, cardiovascular and respiratory assistance), and surgical emergencies (management of polytrauma, abdominal pain, major non-traumatic abdominal surgical emergencies), on the basis of the main International Guidelines, in order to favor their application and shared management throughout all European Nations	40 h	II semester	no	yes	basic knowledges of physiology, pathophysiology, pharmacology and semeiotics	luigi.petramala@uniroma1.it ; claudio.letizia@uniroma1.it ; andrea.mingoli@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/30893/home
Internal Medicine and General Surgery	Medicine/Internal Medicine	Master	English	2	At the end of the course the student should (1) be able to adress complex clinical cases, affected by muliple pathologies, receiving multiple drugs: (2) know the main risks associated with drug polytherapy and be able to check drug interactions, identify subjects at greater risk of adverse events; (3) interpret arterial blood gas analysis and EKG.	22 h/6 weeks	II semester	No	No	A basic knowledge of Medicine, Pharmacology and Pathophysiology	cosimo.durante@uniroma1.it	https://corsidilaurea.uniroma1.it/en/corso/2020/30893/home
Internal Medicine and General Surgery	Medicine/Internal Medicine	Master	English	0.5	At the end of the course, the student learned notions about technological innovation in general surgery and digestive endoscopy.	6 h/3 weeks	II semester	No	Yes	Not necessary	enrico.fiori@uniroma1.it	
Internal Medicine and General Surgery	Medicine/Internal Medicine	Master	English	1	After the course, the student will have completed an introduction to cinical medicine, to physical examination, to medical diagnosis, to the medical record;, to the doctor-patient relationship; to cure and to care: the differences; illness, disease, sickness: the differences. The objective is to guide the student into the world of Clinical Medicine, helping him/her to get familiar with the concepts of health, disease, person, and providing introductory elements of scientific methodology, and introducing the medical glossary, the medical reasoning and the evidence-based and person-centered modern medicine	12 h/9 weeks	I semester	No	No	Not necessary	maurizio.muscaritoli@uniroma1.it	https://corsidilaurea.uniroma1.it/en/corso/2020/30893/home
LAW AND ECONOMICS I	Law	Master	English	9	The course aims to provide the student with the theoretical tools of the economic analysis of law and the knowledge necessary for their application to European integration issues.	72 h	I semester	no	no	not necessary	valeria.debonis@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/31302/home
COMPARATIVE AND EUROPEAN PRIVATE LAW	Law	Master	English	9	The course aims to deepen the theoretical and practical knowledge of European private law - especially in the light of the process of community integration - through the recognition of the areas in which the community discipline has affected relations between individuals, with particular regard to contracts and liability. civil	72 h	I semester	No	No	not necessary	guido.alpa@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/31302/home
EUROPEAN COMPANY LAW	Law	Master	English	6	The course will explore the main issues which arise in the field of company law in the framework of the European Community legal order	48 h	II semester	No	No	Not necessary	alessandra.paolini@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/31302/home
BUSINESS LAW	Law	Master	English	9	The course aims to illustrate the relationships between law and economics, between legal and economic culture, antitrust legislation, as well as the regulation of the market, services and financial markets.	72 h	I semester	no	No	not necessary	luca.didonna@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/31302/home
EUROPEAN UNION LAW	Law	Master	English	9	The course aims to represent and illustrate the main features of European Union law, with particular reference to the institutional and regulatory changes introduced by the Lisbon Treaty.	72 h	II semester	no	no	not necessary	emanuele.cimiotta@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/31302/home
Transport networks and vehicles	Civil and Industrial Engineering	Master	English	12	https://web.uniroma1.it/cdaingtrasporti/transport-networks-and-vehicles-0	120 h	I semester	no	no	https://web.uniroma1.it/cdaingtrasporti/transport-networks-and-vehicles-0	cristiana.piccioni@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Traffic Engineering and ITS	Civil and Industrial Engineering	Master	English	12	https://web.uniroma1.it/cdaingtrasporti/traffic-engineering-and-its-0	120 h	I+II semester	no	no	https://web.uniroma1.it/cdaingtrasporti/traffic-engineering-and-its-0	gaetano.fusco@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Transport Modeling and Planning	Civil and Industrial Engineering	Master	English	12	https://web.uniroma1.it/cdaingtrasporti/transport-modelling-and-planning-0	120 h	II semester	no	no	https://web.uniroma1.it/cdaingtrasporti/transport-modelling-and-planning-0	guido.gentile@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Air Transport	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingtrasporti/air-transport	60 h	II semester	no	no	https://web.uniroma1.it/cdaingtrasporti/air-transport	mariavittoria.corazza@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Maritime Transport	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingtrasporti/maritime-transport-0	60 h	II semester	no	no	https://web.uniroma1.it/cdaingtrasporti/maritime-transport-0	stefano.ricci@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Road Safety	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingtrasporti/road-safety-and-externalities-0	60 h	II semester	no	no	https://web.uniroma1.it/cdaingtrasporti/road-safety-and-externalities-0	luca.persia@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Transport Infrastructures	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingtrasporti/transport-infrastructures-0	60 h	II semester	no	no	https://web.uniroma1.it/cdaingtrasporti/transport-infrastructures-0	paola.dimascio@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Railway Engineering	Civil and Industrial Engineering	Master	English	12	https://web.uniroma1.it/cdaingtrasporti/railway-engineering-0	120 h	I semester	no	no	https://web.uniroma1.it/cdaingtrasporti/railway-engineering-0	stefano.ricci@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Urban and Regional Policy	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingtrasporti/urban-and-regional-policy-0	60 h	I semester	no	no	https://web.uniroma1.it/cdaingtrasporti/urban-and-regional-policy-0	mariavittoria.corazza@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Freight Transport and Logistics	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingtrasporti/freight-transport-and-logistics-0	60 h	I semester	no	no	https://web.uniroma1.it/cdaingtrasporti/freight-transport-and-logistics-0	chiara.colombaroni@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Maritime Constructions	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingtrasporti/maritime-constructions-0	60 h	II semester	no	no	https://web.uniroma1.it/cdaingtrasporti/maritime-constructions-0	paolo.degirolamo@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/
Transport Policies	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingtrasporti/transport-policies-and-terminal-design-0	60 h	II semester	no	no	https://web.uniroma1.it/cdaingtrasporti/transport-policies-and-terminal-design-0	luca.persia@uniroma1.it	https://web.uniroma1.it/cdaingtrasporti/

Smart factory	Civil and Industrial Engineering	Master	English	6	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30844/20210916103754/ca18c825-6838-4f26-b922-0f53034f67c0/9cbd7c34-3df8-4175-810e-7c96f9e407c6/eebe8abe-b71c-4773-b3c2-6bba1551e8b0/f106f011-0c23-40c7-a655-b24f080341ed?guid_cv=9cbd7c34-3df8-4175-810e-7c96f9e407c6&current_erogata=ca18c825-6838-4f26-b922-0f53034f67c0	60 h	II semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30844/20210916103754/ca18c825-6838-4f26-b922-0f53034f67c0/9cbd7c34-3df8-4175-810e-7c96f9e407c6/eebe8abe-b71c-4773-b3c2-6bba1551e8b0/f106f011-0c23-40c7-a655-b24f080341ed?guid_cv=9cbd7c34-3df8-4175-810e-7c96f9e407c6&current_erogata=ca18c825-6838-4f26-b922-0f53034f67c0	francesco.costantino@uniroma1.it	www.ingmecc.uniroma1.it
Advanced Methods in Mechanical Design	Civil and Industrial Engineering	Master	English	6	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30844/20210916103754/ca18c825-6838-4f26-b922-0f53034f67c0/8db393ad-fb18-44d7-bc9a-c28cddbdb6b7/eaf855c7-666d-4734-a3d4-3d547081ea89/e961ae88-190e-403c-90fd-ecbe2dc4ba4a?guid_cv=8db393ad-fb18-44d7-bc9a-c28cddbdb6b7&current_erogata=ca18c825-6838-4f26-b922-0f53034f67c0	60 h	II semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30844/20210916103754/ca18c825-6838-4f26-b922-0f53034f67c0/8db393ad-fb18-44d7-bc9a-c28cddbdb6b7/eaf855c7-666d-4734-a3d4-3d547081ea89/e961ae88-190e-403c-90fd-ecbe2dc4ba4a?guid_cv=8db393ad-fb18-44d7-bc9a-c28cddbdb6b7&current_erogata=ca18c825-6838-4f26-b922-0f53034f67c0	francesca.campana@uniroma1.it	www.ingmecc.uniroma1.it
Vehicle system dynamics and mechatronics	Civil and Industrial Engineering	Master	English	6	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30844/20210916103754/ca18c825-6838-4f26-b922-0f53034f67c0/9cbd7c34-3df8-4175-810e-7c96f9e407c6/eebe8abe-b71c-4773-b3c2-6bba1551e8b0/fb5f5fe8-efe2-493f-b1f4-f63c411e8408?guid_cv=9cbd7c34-3df8-4175-810e-7c96f9e407c6&current_erogata=ca18c825-6838-4f26-b922-0f53034f67c0	60 h	II semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30844/20210916103754/ca18c825-6838-4f26-b922-0f53034f67c0/9cbd7c34-3df8-4175-810e-7c96f9e407c6/eebe8abe-b71c-4773-b3c2-6bba1551e8b0/fb5f5fe8-efe2-493f-b1f4-f63c411e8408?guid_cv=9cbd7c34-3df8-4175-810e-7c96f9e407c6&current_erogata=ca18c825-6838-4f26-b922-0f53034f67c0	antonio.carcaterra@uniroma1.it	www.ingmecc.uniroma1.it
Advanced Energy Conversion Systems	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30844/20210916103754/ca18c825-6838-4f26-b922-0f53034f67c0/2373c9a8-0832-42a8-9dd2-fa8419cfdba3/ade3cb2a-e976-44df-b3ab-da06876eb5df/ca869781-6ff1-4883-a549-8d3707436ec6?guid_cv=2373c9a8-0832-42a8-9dd2-fa8419cfdba3&current_erogata=ca18c825-6838-4f26-b922-0f53034f67c0	90 h	II semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30844/20210916103754/ca18c825-6838-4f26-b922-0f53034f67c0/2373c9a8-0832-42a8-9dd2-fa8419cfdba3/ade3cb2a-e976-44df-b3ab-da06876eb5df/ca869781-6ff1-4883-a549-8d3707436ec6?guid_cv=2373c9a8-0832-42a8-9dd2-fa8419cfdba3&current_erogata=ca18c825-6838-4f26-b922-0f53034f67c0	alessandro.corsini@uniroma1.it	www.ingmecc.uniroma1.it
Diagnostica delle Macchine e dei Sistemi Energetici	Civil and Industrial Engineering	Master	English	6	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30844/20210916103754/ca18c825-6838-4f26-b922-0f53034f67c0/2373c9a8-0832-42a8-9dd2-fa8419cfdba3/ade3cb2a-e976-44df-b3ab-da06876eb5df/46668f30-c195-437b-8ebe-9c2a57848b417guid_cv=2373c9a8-0832-42a8-9dd2-fa8419cfdba3&current_erogata=ca18c825-6838-4f26-b922-0f53034f67c0	60	II semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30844/20210916103754/ca18c825-6838-4f26-b922-0f53034f67c0/2373c9a8-0832-42a8-9dd2-fa8419cfdba3/ade3cb2a-e976-44df-b3ab-da06876eb5df/46668f30-c195-437b-8ebe-9c2a57848b41?guid_cv=2373c9a8-0832-42a8-9dd2-fa8419cfdba3&current_erogata=ca18c825-6838-4f26-b922-0f53034f67c0	alessandro.corsini@uniroma1.it	www.ingmecc.uniroma1.it
Space Missions and systems	Civil and Industrial Engineering	Master	English	6	Fornire le conoscenze di base sul progetto di missioni spaziali e sui sistemi di navigazione e di controllo d'assetto di satelliti e sonde spaziali. Capacità di dimensionare e progettare semplici sistemi di determinazione e di controllo dell'orbita e dell'assetto di satelliti e sonde spaziali. Conoscenza dello sviluppo e delle operazioni di missioni spaziali.	60	II semester	no	no		luciano.iess@uniroma1.it	www.ingaero.uniroma1.it
Impianti di Trattamento delle Acque	Civil and Industrial Engineering	Master	Italian	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2020/30845/20200313105820/c82901e8-ddfa-4fc2-a896-af48071d75ae/9beefd76-4bd1-45fd-a529-bf6f2edee571/1c61205d-0c79-436a-9b77-4ec07d015b95/ab9ec2ae-7fda-4c15-9329-c1e70b15eb867guid_cv=9beefd76-4bd1-45fd-a529-bf6f2edee571&current_erogata=c82901e8-ddfa-4fc2-a896-af48071d75ae	90	II semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2020/30845/20200313105820/c82901e8-ddfa-4fc2-a896-af48071d75ae/9beefd76-4bd1-45fd-a529-bf6f2edee571/1c61205d-0c79-436a-9b77-4ec07d015b95/ab9ec2ae-7fda-4c15-9329-c1e70b15eb867guid_cv=9beefd76-4bd1-45fd-a529-bf6f2edee571&current_erogata=c82901e8-ddfa-4fc2-a896-af48071d75ae	agostina.chiavola@uniroma1.it	https://web.uniroma1.it/cdaingambientale/
Impianti di Trattamento dei Rifiuti Solidi	Civil and Industrial Engineering	Master	Italian	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2020/30845/20200313105820/c82901e8-ddfa-4fc2-a896-af48071d75ae/9beefd76-4bd1-45fd-a529-bf6f2edee571/1f31b6fe-7ad8-4027-8219-3d739bbb467d/c4cf867b-2cea-48af-ab5f-b512f037615e?guid_cv=9beefd76-4bd1-45fd-a529-bf6f2edee571&current_erogata=c82901e8-ddfa-4fc2-a896-af48071d75ae	90	I semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2020/30845/20200313105820/c82901e8-ddfa-4fc2-a896-af48071d75ae/9beefd76-4bd1-45fd-a529-bf6f2edee571/1f31b6fe-7ad8-4027-8219-3d739bbb467d/c4cf867b-2cea-48af-ab5f-b512f037615e?guid_cv=9beefd76-4bd1-45fd-a529-bf6f2edee571&current_erogata=c82901e8-ddfa-4fc2-a896-af48071d75ae	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/

Gestione dei Rifiuti Solidi	Civil and Industrial Engineering	Master	Italian	6	https://corsidilaurea.uniroma1.it/it/view-course-details/2020/30845/20200313105820/c82901e8-ddfa-4fc2-a896-af48071d75ae/9beefd76-4bd1-45fd-a529-bf6f2edee571/1f31b6fe-7ad8-4027-8219-3d739bbb467d/7cc8e5b5-674f-428d-b906-523227cfb31a?guid_cv=9beefd76-4bd1-45fd-a529-bf6f2edee571&current_erogata=c82901e8-ddfa-4fc2-a896-af48071d75ae	#RIF!	I semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2020/30845/20200313105820/c82901e8-ddfa-4fc2-a896-af48071d75ae/9beefd76-4bd1-45fd-a529-bf6f2edee571/1f31b6fe-7ad8-4027-8219-3d739bbb467d/7cc8e5b5-674f-428d-b906-523227cfb31a?guid_cv=9beefd76-4bd1-45fd-a529-bf6f2edee571&current_erogata=c82901e8-ddfa-4fc2-a896-af48071d75ae	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/
Waste management and role in climate change	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/corso/2021/31286/programmazione	90 h	from 22-23	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/31286/programmazione	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/
Sustainable Development and Planning	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/corso/2021/31286/programmazione	90 h	from 22-23	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/31286/programmazione	carlo.cellamare@uniroma1.it	https://web.uniroma1.it/cdaingambientale/
Greenhouse gases: control and treatment	Civil and Industrial Engineering	Master	English	6	https://corsidilaurea.uniroma1.it/it/corso/2021/31286/programmazione	60 h	from 22-23	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/31286/programmazione	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/
Remote sensing and Geo Big Data	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/159e3814-aa94-499d-84e6-2abbbc9ae4c9/894e25ad-417b-4de7-bcab-9f78b8e704f8?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	90 h	II semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/159e3814-aa94-499d-84e6-2abbbc9ae4c9/894e25ad-417b-4de7-bcab-9f78b8e704f8?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	valerio.baiocchi@uniroma1.it	https://web.uniroma1.it/cdaingambientale/
Geomatics for territorial monitoring plan (eng)	Civil and Industrial Engineering	Master	English	6		60 h	from 22-23	no	no		mattia.crespi@uniroma1.it	https://web.uniroma1.it/cdaingsicurezza/
Risk and territorial resilience	Civil and Industrial Engineering	Master	English	6		60 h	from 22-23	no	no		Docente di alta qualificzione	https://web.uniroma1.it/cdaingsicurezza/
Safety of solid processing plants	Civil and Industrial Engineering	Master	English	6+3		90 h	from 22-23	no	no		giuseppe.bonifazi@uniroma1.it	https://web.uniroma1.it/cdaingsicurezza/
Sustainable use of underground resources	Civil and Industrial Engineering	Master	English	6		60 h	from 22-23	no	no		claudio.alimonti@uniroma1.it	https://web.uniroma1.it/cdaingsicurezza/
Water and solid waste treatment plants	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2020/30842/20200313105820/bbb7145d-7e1c-4377-99ed-9b5b1a461583/10239963-89ad-4166-9859-70b09549fc2e/d4cfd079-3003-43a6-b22e-8a2ba112ebef/b3769cc0-12dc-4887-acc6-419e3d8f0b1c?guid_cv=10239963-89ad-4166-9859-70b09549fc2e&current_erogata=bbb7145d-7e1c-4377-99ed-9b5b1a461583	90 h	I semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2020/30842/20200313105820/bbb7145d-7e1c-4377-99ed-9b5b1a461583/10239963-89ad-4166-9859-70b09549fc2e/d4cfd079-3003-43a6-b22e-8a2ba112ebef/b3769cc0-12dc-4887-acc6-419e3d8f0b1c?guid_cv=10239963-89ad-4166-9859-70b09549fc2e&current_erogata=bbb7145d-7e1c-4377-99ed-9b5b1a461583	paolo.viotti@uniroma1.it	web.uniroma1.it/sbe
Engineering Geology	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30425/20210916103754/712f61d5-52eb-426c-89fc-fa74e54c30ca/34400462-5d1c-40f3-b8e2-cd50c278b149/c5d06948-4acc-4812-b372-e535f0a79749/df372c46-0214-4778-a8d7-603ffc3f8f8b?guid_cv=34400462-5d1c-40f3-b8e2-cd50c278b149&current_erogata=712f61d5-52eb-426c-89fc-fa74e54c30ca	90 h	I semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30425/20210916103754/712f61d5-52eb-426c-89fc-fa74e54c30ca/34400462-5d1c-40f3-b8e2-cd50c278b149/c5d06948-4acc-4812-b372-e535f0a79749/df372c46-0214-4778-a8d7-603ffc3f8f8b?guid_cv=34400462-5d1c-40f3-b8e2-cd50c278b149&current_erogata=712f61d5-52eb-426c-89fc-fa74e54c30ca	guseppe.sappa@uniroma1.it	web.uniroma1.it/sbe
Environmental Engineering	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/30425/20210916103754/712f61d5-52eb-426c-89fc-fa74e54c30ca/34400462-5d1c-40f3-b8e2-cd50c278b149/d156091b-1a8d-4674-ba66-497e64563728/578ab85f-e0a1-4af6-870f-2bf952cde7be?guid_cv=34400462-5d1c-40f3-b8e2-cd50c278b149&current_erogata=712f61d5-52eb-426c-89fc-fa74e54c30ca	90 h	I semester	no	no	Il Corso si pone come obiettivo quello di fornire allo Studente le conoscenze teoriche di base dei principali processi utilizzati nel settore dell'Ingegneria Sanitaria Ambientale, con particolare riferimento ai fondamenti scientifici della cinetica chimica e biologica, ai parametri di caratterizzazione dell'inquinamento dei vari comparti ambientali, ai bilanci di materia ai diversi sistemi naturali ed ingegneristici, ed alle caratteristiche delle principali operazioni unitarie.	agostina.chiavola@uniroma1.it	web.uniroma1.it/sbe
Urban climatology	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/e2c2d212-23af-4ce6-8cf4-45a886bfddf6/a1aeb258-0d26-4a32-ad26-6a9d776efa69?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	90 h	I semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/e2c2d212-23af-4ce6-8cf4-45a886bfddf6/a1aeb258-0d26-4a32-ad26-6a9d776efa69?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	paolo.monti@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale

Hydraulic risk adaptation and mitigation measures	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/159e3814-aa94-499d-84e6-2abbbc9ae4c9/2de07847-897c-4f0c-9f9b-f2e15e452ad1?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	90 h	II semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/159e3814-aa94-499d-84e6-2abbbc9ae4c9/2de07847-897c-4f0c-9f9b-f2e15e452ad1?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	francesco.napolitano@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Environmental geophysics	Civil and Industrial Engineering	Master	English	9	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	90 h	I semester	no	no	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Environmental economics and law	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/e2c2d212-23af-4ce6-8cf4-45a886bfddf6/e271cfc8-88e9-48ef-804b-ed4da34c06c8?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	90 h	I semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/e2c2d212-23af-4ce6-8cf4-45a886bfddf6/e271cfc8-88e9-48ef-804b-ed4da34c06c8?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Renewable energy	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	60 h	II semester	no	no	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Sustainable development and planning	Civil and Industrial Engineering	Master	English	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/e2c2d212-23af-4ce6-8cf4-45a886bfddf6/9673a497-afd0-4a5d-a360-3d24fc4a3055?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	90 h	I semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/e2c2d212-23af-4ce6-8cf4-45a886bfddf6/9673a497-afd0-4a5d-a360-3d24fc4a3055?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	carlo.cellamare@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Landslides and slope engineering	Civil and Industrial Engineering	Master	English	6	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/159e3814-aa94-499d-84e6-2abbbc9ae4c9/9778b064-a28a-4998-82f1-f2efe033fb5d?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	60 h	II semester	no	no	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/31286/20210916103754/eba72de2-f38e-4ecf-a289-59acacdd7f59/ae82703b-3d86-451c-bbd4-1580012a1d9b/159e3814-aa94-499d-84e6-2abbbc9ae4c9/9778b064-a28a-4998-82f1-f2efe033fb5d?guid_cv=ae82703b-3d86-451c-bbd4-1580012a1d9b&current_erogata=eba72de2-f38e-4ecf-a289-59acacdd7f59	angelo.amorosi@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Urban mining and recycling of materials	Civil and Industrial Engineering	Master	English	9	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	90 h	I semester	no	no	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Policies and actions for climate change mitigation	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	60 h	II semester	no	no	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Modelling of Environmental Pollution	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	60 h	II semester	no	no	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Geolocation and Navigation	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	60 h	I semester	no	no	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Coastal engineering	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	60 h	II semester	no	no	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Groundwater management and conservation	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	60 h	II semester	no	no	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Assessment and sustainable use of environmental resources	Civil and Industrial Engineering	Master	English	6	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	60 h	II semester	no	no	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale	alessandra.polettini@uniroma1.it	https://web.uniroma1.it/cdaingambientale/corsi-di-laurea/magistrale
Tecnica urbanistica con laboratorio progettuale	Civil and Industrial Engineering	Master	Italian	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/29922/20210916103754/b031e471-4b3c-4c9f-984c-a413c4bb974e/a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5/5b095a8b-1aee-4654-b83a-0040574ee410/abc6dd2a-7d80-4661-9b61-c238710dac21?guid_cv=a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5&current_erogata=b031e471-4b3c-4c9f-984c-a413c4bb974e	90 h	I+II semester	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home	Fabiola.Fratini@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home
Urbanistica con laboratorio progettuale	Civil and Industrial Engineering	Master	Italian	12	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/29922/20210916103754/b031e471-4b3c-4c9f-984c-a413c4bb974e/a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5/4103056a-f874-4ade-b697-c68deb4be407/4845df17-e9d3-4899-95b2-ffb5f467792e?guid_cv=a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5&current_erogata=b031e471-4b3c-4c9f-984c-a413c4bb974e	120 h	I+II semester	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home	Claudia.Mattogno@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home
Progettazione urbanistica	Civil and Industrial Engineering	Master	Italian	12	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/29922/20210916103754/b031e471-4b3c-4c9f-984c-a413c4bb974e/a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5/f8de8f30-a3be-4ad3-b1b7-f1b5f17fef38/5222a020-a60a-4213-9be3-9d8b3d7b9ad8?guid_cv=a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5&current_erogata=b031e471-4b3c-4c9f-984c-a413c4bb974e	120 h	I+II semester	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home	Antonio.Cappuccitti@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home
Architettura e composizione architettonica 3 con laboratorio progettuale	Civil and Industrial Engineering	Master	Italian	12	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/29922/20210916103754/b031e471-4b3c-4c9f-984c-a413c4bb974e/a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5/7828d45a-7127-4854-a0bc-e8754a5d9bd2/25bb744c-32e5-45be-8417-26d67dea4e2?guid_cv=a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5&current_erogata=b031e471-4b3c-4c9f-984c-a413c4bb974e	120 h	I+II semester	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home	ruggero.lenci@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home
Progettazione architettonica e urbana	Civil and Industrial Engineering	Master	Italian	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/29922/20210916103754/b031e471-4b3c-4c9f-984c-a413c4bb974e/a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5/f8de8f30-a3be-4ad3-b1b7-f1b5f17fef38/674723fe-9f7b-4c89-9a9f-d4619f1ba921?guid_cv=a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5&current_erogata=b031e471-4b3c-4c9f-984c-a413c4bb974e	90 h	I+II semester	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home	Maria.Argenti@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home
Architettura tecnica e sostenibilità ambientale	Civil and Industrial Engineering	Master	Italian		https://corsidilaurea.uniroma1.it/it/view-course-details/2021/29922/20210916103754/b031e471-4b3c-4c9f-984c-a413c4bb974e/a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5/f8de8f30-a3be-4ad3-b1b7-f1b5f17fef38/51cbaf1e-71cd-4bf7-90f3-6712f32bea7a?guid_cv=a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5&current_erogata=b031e471-4b3c-4c9f-984c-a413c4bb974e		I+II semester	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home	Michele.Morganti@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home
Principi di Riabilitazione Strutturale	Civil and Industrial Engineering	Master	Italian	9	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/29922/20210916103754/b031e471-4b3c-4c9f-984c-a413c4bb974e/a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5/f8de8f30-a3be-4ad3-b1b7-f1b5f17fef38/328f95de-6365-46db-a7de-374ca4401bdd?guid_cv=a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5&current_erogata=b031e471-4b3c-4c9f-984c-a413c4bb974e	90 h	I+II semester	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home	Domenico.Liberatore@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home

Elementi di Dinamica delle Strutture e Costruzioni Antisismiche	Civil and Industrial Engineering	Master	Italian	6	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/29922/20210916103754/b031e471-4b3c-4c9f-984c-a413c4bb974e/a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5/f8de8f30-a3be-4ad3-b1b7-f1b5f17ef38/c244efb1-c8b7-4f4c-9189-8ba5220f1368?guid_cv=a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5&current_erogata=b031e471-4b3c-4c9f-984c-a413c4bb974e	60 h	I+II semester	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home	Maurizio.DeAngelis@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home
Restauro architettonico con Laboratorio progettuale	Civil and Industrial Engineering	Master	Italian	12	https://corsidilaurea.uniroma1.it/it/view-course-details/2021/29922/20210916103754/b031e471-4b3c-4c9f-984c-a413c4bb974e/a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5/f8de8f30-a3be-4ad3-b1b7-f1b5f17ef38/63adfd97-3b4a-46f0-a7a7-ddf83de01219?guid_cv=a3c3dd3c-6a85-4937-b5b5-0d0b20da59c5&current_erogata=b031e471-4b3c-4c9f-984c-a413c4bb974e	120 h	I+II semester	no	no	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home	Maria.GraziaTurco@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/29922/home
Smart materials for conservation in Archaeology	Faculty of Mathematics, Physical and Natural Sciences	Master	English	6	The course is divided into two modules: "smart materials" and "geomaterials". The first concerns the nature, production and application of nanomaterials and smart materials for the conservation and protecion of mobile and immobile cultural heritage; the second is on the analysis of ancient geo-materials in the field of cultural heritage (e.g., stone, ceramics, glass, plasters): their nature, production processes and degradation.	60 h, 4h/week	I semester	No	Yes		marialaura.santarelli@uniroma1.it, laura.medeghini@uniroma1.it	https://web.uniroma1.it/dip_dba302/en
Plant biology and conservation for Cultural Heritage	Faculty of Mathematics, Physical and Natural Sciences	Master	English	9	Plants have always been a main resource for humans. The course investigates the climate-plants interactions along the human history, since before the dawn of agriculture. Diagnostic and tools to know and preserve our cultural heritage will be taught as well. The course has also field trips in historical Italian sites (e.g. Pompeii, Herculaneum, Pyrgi) and museums.	80 h (of which 24 h in the field), 6h/week	I semester	No	Yes		laura.sadori@uniroma1.it, gabriele.favero@uniroma1.it	https://web.uniroma1.it/dip_dba302/en
Applied geosciences and bioconservation laboratory	Faculty of Mathematics, Physical and Natural Sciences	Master	English	9	The course is focused on the analytical methods belonging to the earth sciences that can be applied in the study of cultural heritage and on the basic knowledge of the bioconservation: selection and recognition of the microbial community present on an artwork; evaluation of the biodeterioration and the identification of the best strategy for the bioconservation.	72 h, 6h/week	I semester	No	Yes		teresa.rinaldi@uniroma1.it; laura.medeghini@uniroma1.it	https://web.uniroma1.it/dip_dba302/en
Geomaterials for Cultural Heritage	Faculty of Mathematics, Physical and Natural Sciences	Master	English	6	The course concerns the study of the ancient geo-materials in the field of cultural heritage (e.g., stone, ceramics, glass, plasters); their nature, production processes and degradation. In addition, the recent innovative scientific methods used in their characterization will be presented using case studies. This information will allow students to independently develop a research project which will be set during the laboratory hours and evaluated at the end of the course.	52 h, 4h/week	I semester	No	Yes		laura.medeghini@uniroma1.it	https://web.uniroma1.it/dip_dba302/en
Neuropsychopharmacology	Faculty of Mathematics, Physical and Natural Sciences	Master	English	6	Study the physiological properties of agents acting within the central nervous system	48 h	II semester	No	Yes	Basic Knowledge of Neurophysiology, Biochemistry	aldo.badiani@uniroma1.it	http://bbcd.bio.uniroma1.it/bbcd/en
Neuropharmacology of motivational processes	Faculty of Mathematics, Physical and Natural Sciences	Master	English	6	Provide an overview of the neuropharmacology of motivational processes	48 h	I semester	No	Yes	Basic Knowledge of Neurophysiology, Biochemistry	daniele.caprioli@uniroma1.it	http://bbcd.bio.uniroma1.it/bbcd/en
Psychobiology with elements of psychopharmacology	Faculty of Mathematics, Physical and Natural Sciences	Master	English	6	Study and understanding the relationship between the nervous system and behavior, from reflexes to cortical functions.	52 h	II semester	No	Yes	Basic Knowledge of cellular and system biology	andrea.mele@uniroma1.it	http://bbcd.bio.uniroma1.it/bbcd/en
Molecular plant pathology: the main strategies of integrated pest management	Faculty of Mathematics, Physical and Natural Sciences	Master	English	6	Provide knowledge on the molecular aspects of plant-pathogen interactions. Study how pathogens counteract plant defense response and establish resistance.	52 h	I semester	No	Yes	Basic Knowledge of cellular and system biology	luigi.faino@uniroma1.it	http://bbcd.bio.uniroma1.it/bbcd/en
Molecular dynamics in plant-microbe interactions: the study of plant-microbe interactions to develop biotechnological approaches for crop improvement	Faculty of Mathematics, Physical and Natural Sciences	Master	English	6	Study of the molecular, cellular and evolutionary aspects of plant immunity and the analogies and differences with the animal innate immune system	48 h	II semester	No	Yes	Basic Knowledge of cellular and system biology	giulia.delorenzo@uniroma1.it	http://bbcd.bio.uniroma1.it/bbcd/en
Immunology and Immunopathology	Pharmacy and Medicine/Medicine	Master	English	8	Main teaching objectives: To understand the molecular and cellular basis of the immune response. To understand the fundamental mechanisms responsible for protection and for tissue damage, and to comprehend their specific role in the resistance against pathogens, the immune surveillance against tumors, and immune-mediated diseases. To be able to describe the main events and mechanisms that define the development of protective and pathological immune responses. To understand how research activity contributes to the evolution of knowledge in the immunology field.	96 h	I semester	YES	YES	Students need to possess the knowledge of microbiology, biochemistry, genetics and cell biology, physiology, and anatomy.	gabriella.palmieri@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/30893/home
Paediatrics	Pharmacy and Medicine/Medicine	Master	English	6	Main teaching objectives: Learning physiology, pathology, clinical and laboratory approach, therapy related to growing individuals, specific issues of preventive pediatrics, pediatric diseases from neonatal age through adolescence. a) Normal neurological and mental development of children (neuromotor development, language and communication development, affective development) b) Epidemiology and clinical presentation of psychiatric disorders in children and adolescents c) Developmental disorders: definition, epidemiology and nosography (autistic spectrum disorders, intellective disability, learning disorders) d) Nosography and etiology of neurological disorders in children (semiology of neurological disorders emerging during the first 3 years of life; primary and acquired neurological conditions during childhood and adolescence) e) Presenting symptoms and diagnostic work-up in neurological and psychiatric disorders in children and adolescents	72 h	I semester	YES	YES	A basic knowledge of medical pathology and pharmacology is required.	raffaella.nenna@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/30893/home
Anatomy III	Pharmacy and Medicine/Medicine	Master	English	7	• Neuroanatomy: Overview of the Central Nervous System. Spinal cord. Brain stem. Cerebellum. Diencephalon. Basal ganglia. Cerebral hemisphere. Ventricular system, subarachnoid spaces and meninges. Motor pathways. Pathways of the general and the specific sensibility. • Peripheral nervous system: Generalities. Spinal nerves. Plexuses. Cranial nerves. Organization of the Autonomic Nervous System. • Visual apparatus: Orbit and accessory visual apparatus. Eyeball. Visual Pathway. • Auditory apparatus: External and middle ear. Internal ear. Pathway of sound reception. • Endocrine system: Generalities. Hypothalamus and its nuclei. Pituitary gland. Pineal gland. Thyroid and parathyroid glands. Adrenal gland. Endocrine Pancreas. Interstitial glands of testis and ovary	82 h	II semester	YES	YES	Knowledge of the main cytologic and histologic characteristics of the human body; knowledge of human embryology; knowledge of the anatomy of the musculoskeletal system and of the heart; knowledge of the anatomy of splanchnic viscera	eugenio.gaudio@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/30893/home
Anatomy II	Pharmacy and Medicine/Medicine	Master	English	7	Learners who successfully achieve this module will acquire knowledge of the structural organization and functions of the human body and their main anatomical and clinical applications at a macroscopic, microscopic and ultrastructural level. Main skills are: to identify macroscopic anatomical samples; to recognize the structure of the organs by light microscopy.	12 weeks - 48 h	I semester	YES	YES	Knowledge of the main cytologic and histologic characteristics of the human body; knowledge of human embryology; knowledge of the anatomy of the musculoskeletal system and of the heart.	stafania.nottola@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/30893/home
General Surgery I	Pharmacy and Medicine/Medicine	Master	English	2	General surgery in the integrated approach to clinical medicine, clinical oncology and radiotherapy.	24 h	II semester	Yes	YES	none	giuseppe.nigri@uniroma1.it	https://corsidilaurea.uniroma1.it/it/corso/2021/30893/home
Nanotechnologies	Farmacia e Medicina, SMFN	Bachelor	English	6	Nanothechnology applications, drug delivery and targeting strategies	48 h	I semester				Carlotta Marianecci and Paola Baiocco	https://corsidilaurea.uniroma1.it/en/corso/2021/31179/home
Pharmaceutical Chemistry	Farmacia e Medicina, Ingegneria dell'Informazione, Informatica e Statistica, SMFN, Medicina e Odontoiatria	Bachelor	English	6	Drug discovery and development process, drug-target interactions, physicochemical properties related to drug action such as acid-base properties, equilibrium, and stereochemistry,	72 h	II semester				Giovanna Poce	https://corsidilaurea.uniroma1.it/it/corso/2021/30422/home
Satellite Earth Observation	I3S	Master	English	6	INTRODUCTION AND FOUNDATIONS. Definition of remote sensing. Elements of physics: electromagnetic waves, radiative quantities (power density, radiance, emissivity); thermal emission; Planck and Stefan-Boltzmann laws; absorption and scattering phenomena. Atmospheric effects in spaceborne and airborne remote sensing. The electromagnetic spectrum and its use for remotely sensing the Earth; visible, infrared and microwave bands. CLASSIFICATION OF REMOTE SENSING SENSORS. Parameters to characterize sensor performances and product quality; geometric, radiometric and spectral resolutions; geometric accuracy and sensor coverage. Microwave radiometers. Active microwave sensors (radar) main characteristics (SLAR, SAR, wind scatterometer, radar altimeter). Radar images radiometric and geometric properties. Principles of visible and infrared radiometers (mechanical scanning and pushbroom radiometers). ENVIRONMENTAL DATA, MODELS AND ALGORITHMS. Spectral properties of the sea, soil and vegetation surfaces in the visible and near infrared spectral ranges. Applications and algorithms for visible and near infrared radiometers. Retrieval algorithms of sea surface temperature. Scattering properties of sea and soil surfaces in the microwave bands. Applications and algorithms for microwave radiometry of atmosphere, soil and vegetation. Applications and algorithms for radar remote sensing and radar interferometry. EARTH OBSERVATION SATELLITES. Space and ground segments of an Earth observation system. Radiometric, spectral, spatial and temporal requirements of an Earth observation mission. Main orbits for remotely sensing the Earth. Overview of LANDSAT, SPOT, TIROS, METEOSAT, ERS-1/2, Envisat, Sentinel missions. DMSP, MetOp platforms and "high resolution" satellites. DATA PROCESSING AND IMAGE INTERPRETATION. Standard methods to perform image geometric correction and radiometric calibration. Forward and inverse problem. Bayesian theory, regression analysis and image classification. Bio-geophysical paramater detection and estimation and product generation. Ground-segment data handling, processing, storage. Software packages for data processing and analysis.	60 h	II semester	No	No	No	nazzareno.pierdicca@uniroma1.it	
Electromagnetics and Radar Meteorology	I3S	Master	English	6	OBJECTIVES Main goals are: - to introduce the classical electromagnetic vector field theory and its main theorems; - to derive properties of plane and spherical waves and the related reflection and refraction phenomena; - to provide the basics of electromagnetic radiation theory, radiopropagation and particle scattering; - to provide the basics of clouds and precipitation microphysics and the related radar observables; - to describe the microwave Doppler polarimetric radar sensor principles and basic equations; - to illustrate the main applications of radar meteorology and data processing. OUTCOMES (Dublin descriptors: knowledge, understanding, explain, skill, ability) After the successful completion of this module, the student should be able to: - know the basic principles of electromagnetics and radar meteorology; - identify the appropriate analytical techniques to approach an electromagnetic problem; - understand the different processes involved within wave propagation and scattering in atmosphere; - explain the signature of meteorological radar measurements for various applications; - show skills for reading and understanding main scientific literature and texts on related topics; - demonstrate the ability to process meteorological data and develop own algorithms.	60 h	I semester	No	No	No	frank.marzano@uniroma1.it	

Optoelectronics	I3S	Master	English	6	KNOWLEDGE AND UNDERSTANDING. Students will acquire a consistent knowledge of phenomena, materials, devices and optoelectronic techniques related to the generation, detection and processing of optical signals, to the photovoltaics for solar energy conversion, for reduction of power consumption. CAPABILITY TO APPLY KNOWLEDGE AND UNDERSTANDING. Students will acquire capabilities to design and to evaluate performance of devices according to the specifications provided, both by lectures and laboratory experiences, for specific applications from telecom, to sensors, to optical instrumentation. MAKING AUTONOMOUS JUDGEMENTS. Students will acquire the expertise to design and to evaluate performance of most optoelectronic devices for any optoelectronic system. COMMUNICATE SKILLS. Students will acquire the capabilities to communicate in both written and oral form on the contents of the course, by means of written reports and oral discussions both in the classroon and during the exam. LEARNING SKILLS. Students will acquire the capabilities to learn the contents of the course by several means using lecture notes, books, technical and scientific literature available on web, laboratory experiences as indicated by the teacher.	60 h	I semester	No	No	No	antonio.dalessandro@uniroma1.it
Optimization Methods for Machine Learning	I3S	Master	English	6	1. Introduction. Definition of learning systems. Goals and applications of machine learning (classification and regression). Basics on statistical learning theory (Vapnik Chervonenkis bound). Underfitting and Overfitting. Use of data: training set, test set, validation set. 2. Artificial Neural Networks. Neurons and biological motivation. Linear threshold units. The Perceptron and its learning algorithm (proof of convergence). Classification of linearly separable patterns. Multi-Layer Feedforward Neural Networks. Gradient method: basics. Back-propagation (BP) algorithm. BP batch version: proof of convergence and choice of the learning rate. BP on-line version: incremental method, theorem of convergence. Momentum updating rule. Radial-Basis function (RBF) networks: regularized and generalized RBF networks. Their use in interpolation and approximation. learning strategies and error functions. Unsupervised selection of center. Supervised selection of weights and centers: decomposition methods into two blocks and decomposition methods into more blocks. Convergence theory of decomposition methods. Early stopping 3. Support Vector Machines (Kernel methods) Soft and hard Maximum Margin Classifiers. Quadratic programming formulation of the soft/hard maximum margin separators. Kernels methods. Dual formulation of the primal QP problem. Wolfe duality theory for QP. KKT conditions. Frank Wolfe method: basics. Decomposition methods: SMO-type algorithms, MVP algorithm, SVMlight, cyclic methods. Convergence theory. Implementation tricks: Caching, shrinking. Choosing parameters: k-fold cross-validation. Multiclass SVM problems: one-against-one and one-against-all. 4. Practical use of learning algorithms. 5. Comparing learning algorithms from the optimization point of view. 6. Use of standard software (Weka, LIBSVM)	60 h	I semester	No	No	No	laura.palagi@uniroma1.it
Electives in Artificial Intelligence	I3S	Master	English	6	General objectives: The aim of the course, which is the most advanced within the Master's Degree in Artificial Intelligence and Robotics, is to provide an overview to the following research topics: learning methods in computational vision, model recognition, human-robot interaction and cognitive robotics. The topics are presented by active researchers in these fields in order to present the student with research problems and relevant and recent application themes in Artificial Intelligence and Robotics. To this end, the courses include both the presentation and discussion of scientific articles, and an advanced project work. The learning objective of the course is to provide the knowledge needed to undertake research work in these fields using practical tools for experimental validation. Specific objectives: Knowledge and understanding: The course is the most advanced in the Master for Artificial Intelligence and Robotics and offers an overview of different research topics, such as: learning methods in computational vision, pattern recognition, person-robot interaction, and automatic reasoning in robots. The topics are covered by researchers active in the field and with the aim of introducing the student to research problems and recent and relevant applications in Artificial Intelligence and Robotics. Applied knowledge and understanding: The course provides the knowledge necessary to undertake research work in these fields using practical tools for experimental validation. Critical and judgment skills: The course proposes advanced methods to study, understand and apply results reported on scientific articles, and integrate these results to create innovative Artificial Intelligence applications. The student learns how to use results from the literature as a basis for new research.	60 h	I semester	No	No	No	cnapoli@diag.uniroma1.it
Productivity and Efficiency Analysis	I3S	Master	English	6	The course, with an interdisciplinary approach, combines theoretical lectures on the economics of production, with lectures on the main econometric approaches proposed in the literature, including recent developments, and practical sessions to introduce to the main open source software available to carry out productivity and efficiency analysis. The main objectives of the course are: - Present a general overview on the economic theory of productivity and efficiency; - Propose a unified framework on the main methodologies available to estimate and compare productivity and efficiency of Decision Making Units (DMUs); - Make an introduction to the main open source software available to estimate productivity and efficiency; - Provide laboratory sessions to implement productivity and efficiency analyses in practice; - Provide the basic concepts to analyse the specialised literature; - Interact with students through assisted laboratory and the realization of a practical work on real data, seminars and oral presentations. Specific Objectives • KNOWLEDGE AND UNDERSTANDING: DEMONSTRATE THE KNOWLEDGE OF THE BASIC ELEMENTS OF PRODUCTIVITY AND EFFICIENCY ANALYSIS; • ABILITY TO APPLY KNOWLEDGE AND UNDERSTANDING: TO BE ABLE TO APPLY EFFICIENCY ANALYSIS TECHNIQUES LEARNED DURING THE COURSE IN ITS OWN ENGINEERING AREA OF SPECIALIZATION; • JUDGMENT AUTONOMY: TO BE ABLE TO PERFORM AN EFFICIENCY ANALYSIS WITH CRITICAL SPIRIT, CHOOSING THE APPROPRIATE METHOD AND CORRECTLY IMPLEMENTING IT. • COMMUNICATION SKILLS: BEING ABLE TO COMMUNICATE THE RESULTS OF THE ANALYSIS AND ITS INFORMATION TO DIFFERENT TYPES OF INTERLOCUTORS; • LEARNING SKILLS: TO DEVELOP THE NECESSARY SKILLS TO APPLY AND DEVELOP AUTONOMOUSLY THE METHODS LEARNED DURING THE COURSE.	60 h	I semester	No	No	No	daraio@diag.uniroma1.it
Data Driven Economics	I3S	Master	English	6	A first objective of the course is to provide a basic toolbox for the analysis of agent and group interaction under uncertainty and asymmetric information, and its main consequences on markets enabled from large-scale digital platforms. A second objective of the course will be to provide the basic methods for the use of big data for estimating relevant economic indices. The active participation of students will be stimulated with game-theoretic examples, presentations, simple experiments, case-studies and projects involving the use of real-world data.	60 h	II semester	No	No	No	marco.marini@uniroma1.it
Economics of Network Industries	I3S	Master	English	6	1. Demand and technology in network industries: Network effects and externalities; Economies of scale and scope; Compatibility and standardization 2. Market organization in network industries: Vertical structure; Vertical and horizontal mergers; 3. Market power and pricing strategies in network industries: Switching costs and lock-in; Bundling and tying; 4. Telecommunications: Natural monopoly and sunk costs; Regulation; Liberalization of markets; 5. Two-sided markets and platforms: Key features and pricing issues; The Internet network; 6. Antitrust policies in network industries	60 h	II semester	No	No	No	reverberi@diag.uniroma1.it

Marketing and Innovation Management	I3S	Master	English	6	GENERAL OBJECTIVES The course provides students with the basic principles and tools useful for Marketing and Innovation Management. Specifically, the course aims at teaching students: the main forces of the marketing environment; the management of marketing information to gain customer insights; consumer and business buyer behaviors; steps and tools to define and implement a marketing strategy; sources, types and patterns of innovation; standards battles and design dominance; the timing of entry; the mechanisms to protect innovation; the new product development process; the integration of environmental sustainability into marketing strategy and new product development. Further, through the analysis of several case studies, the course aims at stimulating analytical skills, which will allow students to understand and explain firm behavior and the related market results in the domain of marketing and technological innovation strategies, by applying principles and tools learnt during the course. SPECIFIC OBJECTIVES KNOWLEDGE AND UNDERSTANDING. The course will allow a comprehension of the fundamental concepts and tools of Marketing and Innovation Management. The students will learn to recognize and to master the best practices and success factors of Marketing and Innovation Management and to apply them in real contexts. CAPABILITY TO APPLY KNOWLEDGE AND UNDERSTANDING. Through the course students will be able to develop a marketing plan, critically evaluate marketing and technological innovation strategies of firms, classify products based on their environmental impact. MAKING AUTONOMOUS JUDGEMENTS. After the course, the student will be able to choose, given the main environmental forces, firm and innovation characteristics, the best marketing and technological innovation strategies. In addition, the student will develop the critical analysis capacity of marketing and innovation management. COMMUNICATION SKILLS. At the end of the course the students will be able to illustrate the concepts of marketing and innovation management using internationally consolidated terminology and models, to organize information and data according to a format and a reporting process comprehensible to professionals. LEARNING SKILLS. The student will develop the capability to autonomously study and critically understand and evaluate marketing and technological innovation strategies and related tools.	60 h	II semester	No	No	No	rosamaria.dangelico@uniroma1.it	
Formal Methods in Software Development	I3S	Master	English	6	General goals: The course is aimed to the acquisition of logical and modeling knowledge needed to verify complex hardware/software systems (model checking). Specific goals: Knowledge and understanding: At the end of the course, students will have full understanding of the presented modeling tools (model checkers). Apply knowledge and understanding: Students will be able to use the tools and the techniques presented during the course, but also to deepen the study independently by consulting other texts dedicated to the subject and scientific material that concerns it. Critical and judgmental skills: The acquired knowledge will allow students to face the applications proposed in other teachings and to face the problems that will be proposed in the working career in terms of modeling systems. Communication skills: Students are stimulated to expose and communicate experiences in the circle of their colleagues. Ability to continue the study: The course deals only with some of the fields proposed, but also gives news of a wide range of techniques that can be used in this field in so that he can critically choose as appropriate.	60 h	I semester	No	No	No	melatti@di.uniroma1.it	
Concurrent Systems	I3S	Master	English	6	General goals: Understanding the basic concepts of concurrent systems and the methodologies used for solving the problems they yield Specific goals: Mutual exclusion, different liveness properties, semaphores, monitors, transactions, mutex-free concurrency, other liveness properties, universal object and consensus. Labelled transitions systems, interleaving semantics, synchronization, simulation and bisimulation, verification techniques, name passing, type systems. Knowledge and comprehension: Understanding the basic issues of concurrent systems and their possible solutions, the foundational principles of a concurrent programming language and the possible verification techniques. Applying knowledge and comprehension: ability of solving basic problems of simple concurrent systems Capabilities of critiquing and assessing: understanding advantages and disadvantages of the different possible solutions of problems in concurrent systems Communication skills: developing a technical and formal language, able to explain the proposed solutions and their relative merits Learning skills: ability in understanding complex programming scenarios and the relative solutions, even complex	60 h	II semester	No	No	No	gorla@di.uniroma1.it	
cloud computing	I3S	Master	English	6	General Objectives: The purpose of the course is to give students the basic concepts of distributed systems and then to focus on cloud computing technologies. The course cover theoretical and practical aspects with a focus on real examples. At the end of the course students are supposed to be capable to chose, setup and use cloud services and to design and deploy scalable architectures and elastic applications. Specific Objectives: Knowledge and understanding: On completion of the course, the student will be be able to describe and to explain - the general concepts related to distributed systems - the concepts of system and application virtualization - the mechanisms and algorithms used in cloud computing - the technologies for cloud storage - the big data processing frameworks - the cyber security issues and solutions in cloud computing Applying knowledge and understanding: On completion of the course, the student will be able: - to design and to implement a scalable architecture and to deploy an elastic application - to write and to present practical results in the form of technical report - to analyze and to present scientific work - to select, to configure and to run cloud services by using management GUI and API offered by IaaS providers - to design and to configure elastic infrastructure and to deploy elastic applications. - to make design choices that account for cyber security issues Making judgements:	60 h	II semester	No	No	No	casalicchio@di.uniroma1.it	

Big Data Computing	I3S	Master	English	6	General goals: The course is aimed at training students on fundamental algorithmic and programming techniques in big-data computing, tackling a variety of data mining problems on computational models used for managing massive information structures. Specific goals: Knowledge and understanding: At the end of the course the students will have deep understanding of programming models for distributed data analysis on large clusters of computers, as well as of advanced computational models for processing massive amounts of data (e.g., data streaming, MapReduce-style parallelism, and I/O-efficient algorithms). Apply knowledge and understanding: Students will be able t o design and analyze algorithms in different big data settings, to write efficient code taking into account architectural features of modern computing platforms (including distributed systems), and to make use of good programming practices and advanced programming frameworks, such as Hadoop. Critical and judgmental skills: Students will be able to distinguish the proper settings in which to use different computational paradigms for big data analysis, to evaluate the advantages and disadvantages of each model, and to face challenges arising in the design and implementation of diverse big data applications. Communication skills: The students will be able to communicate effectively, summarizing the main ideas in the design of big data systems and algorithms clearly and presenting accurate technical information. Ability of learning: The goal for the class is to be broad and to touch upon a variety of techniques, introducing standard practices as well as cutting-edge research topics in this area, making it possible for the students to extend their knowledge independently according to technological changes and evolution.	60 h	II semester	No	No	No	tolomei@di.uniroma1.it	
Network algorithms	I3S	Master	English	6	General objectives Acquire knowledge on the design of complex algorithms to solve graph problems that model problems inherent in networks (wired, wireless and of sensors). Specific goals Knowledge and understanding At the end of the course students will know the basic methodologies for the analysis of problems related to networks and the identification of graph problems that are closer; they will also know the algorithms for solving some of the main problems on graphs. Apply knowledge and understanding: At the end of the course students will have become familiar with the analysis of problems related to networks. They will be able to recognize which is the graph problem that is closer and - reworking existing ones - to design new data structures and related algorithms to solve the starting problem. Critical and judgmental skills Students will be able to analyze the quality of a network algorithm, both from the effective resolution of the problem and from the time complexity point of views. Communication skills Students will acquire the ability to expose their knowledge in a clear and organized way, which will be verified through the oral examination. Learning ability Once the cycle of studies is completed, the acquired knowledge will allow students to face real problems in a critical and effective way and to design efficient solutions.	60 h	I semester	No	No	No	calamo@di.uniroma1.it	
Automatic Software Verification Methods	I3S	Master	English	6	General goals: The course aims at presenting methods and tools for automatic verification and validation of cyber-physical systems. Specific goals: The course aims at making students proficient in the comprehension and application of advanced modelling, verificaton and validation techniques for cyber-physical systems. Knowledge and understanding: A wide-spectrum introduction to the foundational principles of modelling and analisys of cyberphysical systems modelled as DAE (Differential Algebraic Equations). Applying knowledge and understanding: The successful student will be able to exploit the portfolio of techniques and the different approaches shown in the course for the modelling, verificaton and validation of cyber-physical systems. Critical and judgmental abilities: Students will be able to take autonomous and rational decisions on the most effective techniques to employ for the modelling, verification and validation of cyber-physical systems. Communication skills: Students will be able to interact proficiently with domain experts on a wide set of topics concerning modelling, verification and validation of cyber-physical systems. Learning abilities: Students will be able to extend their skills in the subjects of this course, by the autonomous reading of relevant scientific literature.	60 h	I semester	No	No	No	tronci@di.uniroma1.it	
Computational Complexity	I3S	Master	English	6	General goals: This represents a basic course about the Theory of Computational Complexity Specific goals: - Theoretical model of resource running time - Theoretical model ofresource memory occupation - Time and Space complexity classes - The P = NP problem - Unfeasible problems when resources are bounded - Computational Classes L, P, NP, PSPACE, BPP, #P, IP, - Main Results - Boolean Circuit and functions Knowledge and understanding: The student will acquire: 1. The ability to verify reduction and completeness properties between computational problems. 2. Knowledge of the main theorems in the field of Complexity Theory 3. Capabilities of mathematical reasoning on the computational nature of computational resources like running-time, memory occupation, randomness Applying knowledge and understanding: The knowledge acquired is basic and foundational in fields like Software Verification, Game Theory, Analysis of Algorithms Critical and judgmental skills: Enabling autonomous thinking in students by deepening their ability of mathematical reasoning through the development of discrete math techniques and functional analysis abilities. Communication skills:	60 h	I semester	No	No	No	galesi@di.uniroma1.it	
WORLD LITERATURE	Arts and Humanities	MASTER	English	6	This course is focused on the basic topics of World Literature: international and transnational canon debate, translation of literatures and cultures, transnationalism and comparatism.	30+12 h	II semester	20	DEADLINE 31/12/2021	having some knowledge of comparative literature	FRANCA.SINOPOLI@UNIROMA1.IT	https://www.lettere.uniroma1.it/users/franca-sinopoli
LATIN CULTURE AND LITERATURE	Arts and Humanities	BACHELOR	English	6	The course shall survey key aspects and themes of Latin culture and literature	30+12 h	I semester				giorgio.piras@uniroma1.it	https://www.lettere.uniroma1.it/users/giorgio-piras
ROMAN ARCHAEOLOGY	Arts and Humanities	MASTER	English	6	Ancient Rome. The Changing Landascapes of the Palatine Hill. Landscape and its content has been and still are very relevant and vital part of any cultural heritage. The course will introduce you to the way we have been reflecting on over the last twenty years and still are engaged with the study of cities of the Roman World, beginning from the most complex case in the ancient Mediterranean World: the core of Italy and of Roman Empire. Researches developed in the core of the ancient city (Palatine Hill and Forum Romanum) since the end of last century by teams of Sapienza Classical Archaeologists and other Italian and international equips opened a new phase in the urban archaeological investigation and in the scientific debate about the relation between archaeological features and literary tradition as well as the "correct use" of both kind of evidence, key issues of wide archaeological and historical significance. Students will also be introduced to methods and procedures applied in collection, analyses, integration and interpretation of complex and multi-stratificated contexts. After a brief introduction to methods (part 1) and to the ancient city of Rome as a whole (part 2), in this course students will be introduced to reconstructions of the topographical history of the ancient city from the earliest phases to the end of the Empire (parts 3-8).	30+12 h	II semester	NO			paolo.carafa@uniroma1.it	https://www.lettere.uniroma1.it/users/paolo-carafa

History of ancient philosophy I	Arts and Humanities	MASTER	English	12	New Trends in Ancient Philosophy: The Hellenistic Turning Point. Against the background of the more general conviction according to which in ancient philosophy there is no decadence after Plato and Aristotle, but rather a radically new approach under many respects critically developed against the so-called 'classical philosophies', the course will analyze crucial aspects of the most important Hellenistic philosophies (Epicureanism, Stoicisms, and Scepticisms, both Academic and Neo-Pyrrhonian), in order to underline some very important, if not decisive theoretical features of those trends of thought, still valid and productive even for contemporary philosophical debates with regards to basic disciplines as logics, physics, ethics and politics.	64+ 12 h	II semester	NO		emidio.spinelli@uniroma1.it	https://www.lettere.uniroma1.it/users/emidio-spinelli
COGNITIVE SEMANTICS	Arts and Humanities	MASTER	English	6	The course aims at introducing the different conceptions of 'language' and consequently of 'meaning' developed in the complex paradigm of Cognitive Semantics.	30+12 h	II semester	NO		filomena.diodato@uniroma1.it	https://www.lettere.uniroma1.it/users/filomena-diodato
KOREAN LANGUAGE AND LITERATURE A	Arts and Humanities	MASTER	English	12	Language: the course is focused on teaching students with an intermediate level of Korean competence (independent user, reference level B2). Literature: reading, translation, textual analysis, and summary of the literary texts and essays. Tutorials on how to do research and write elaborations in Korean.		I+II semester	NO	KOREAN LANGUAGE B2-C1	antonetta.bruno@uniroma1.it	https://www.lettere.uniroma1.it/users/antonetta-bruno
ARTIST ON THE MOVE	Arts and Humanities	MASTER	English	6	The module focuses on Tibetan contemporary artists who, whether at home or abroad, explore their multicultural influences, examining the tensions between traditional Tibetan and contemporary global culture. Some of the artists that will be introduced in the module include Gade (b. 1971, Lhasa), Gonkar Gyatso (b. 1961, Lhasa), Tenzing Rigdol (b. 1982, Kathmandu), Dedron (b. 1976, Lhasa).		I semester	NO		prof.salviati@gmail.com	https://www.lettere.uniroma1.it/users/filippo-salviati
Aesthetics III	Arts and Humanities	MASTER	English	12	The course (in English and in seminar form) intends to deal with the knot enchantment/disenchantment/re-enchantment that, for some years, and with increasing strength, has taken on a new prominence in the philosophical, anthropological and more specifically aesthetic debate, also directly involving artistic practices. It is a debate that occupies the humanities and social sciences at least since the theses developed by Max Weber in the first two decades of the twentieth century, but in recent years - especially in the face of a crisis in the forms of life of the richest societies and with the proposal of the category of Anthropocene and its derivatives - has taken on a new importance. On the one hand there are those who argue that the process of disenchantment of the world envisaged by Weber - as a premise of the great historical process of rationalization that tends to invest all spheres of life, stripping the world of any magical, animistic, anthropomorphic element, and making it dumb and deaf to any request for unitary sense is the inescapable horizon of modernity. On the other hand, there are those who contest this picture, considering disenchantment as a partial phenomenon or as a prejudice, insisting either on the persistence of "non-disenchanted" pockets (magical, material and spiritual beliefs and practices, within our society and in other societies), or contesting the picture that modernity has made of itself ("we have never been modern", as Bruno Latour wrote). Still others seek modes and forms of life that are supposed to lead to a re-enchantment of the world. But what does this slogan imply? Aesthetic reflection and artistic practices are important elements in this debate that brings into play the most evident coordinates of modernity (critique and autonomy, the vision of nature and scientific research, the constitution of subjectivity and forms of social and political organization). We will analyze and discuss in class some texts and works that will allow to clarify the terms of this debate.	64+ 12 h	I semester	NO		stefano.valotti@uniroma1.it	https://www.lettere.uniroma1.it/users/stefano-velotti
History of the english language	Arts and Humanities	MASTER	English	6	The study of the history of the English language can help students become aware of major issues in several academic fields, including history, literature, political science, anthropology, communication and, of course, languages and linguistics. The course will provide a general description of linguistic changes, and reasons for changes in the grammar, sounds, and vocabulary of English in XVI century. The module will focus on the Tudor period, and the cultural, religious, and economic changes that defined it: the effects of the development of printing, the ideological pressure of the Reformation, and the translation of classics and moderns are just some of the factors that would influence the English of this period. The linguistic variation in the diachronic perspective of the English vernacular will be explored through three text-types, translations, language manuals and dictionaries, all of which are dedicated to the reflection on language and communication between different languages. The figure and works of the Elizabethan linguist, lexicographer and translator John Florio will provide the privileged case study.	30+12 h	II semester	NO		daniela.montini@uniroma1.it	https://www.lettere.uniroma1.it/users/donatella-montini
Anglo-american literatures - advanced course	Arts and Humanities	MASTER	English	6	This 6 CFU course focuses on the traumatic memory and postmemory of World War II and the Holocaust as shaping forces in selected postmodernist and contemporary literary works by Kurt Vonnegut, Philip Roth, and Art Spiegelman. The syllabus will take into account different literary genres and forms, such as war novel, autofiction, uchronia, graphic novel memoir.	30+12 h	II semester	NO		paolo.simonetti@uniroma1.it	https://www.lettere.uniroma1.it/users/paolo-simonetti
NARRATIVES OF MODERNITY IN COLONIAL AND POSTCOLONIAL INDIA B	Arts and Humanities	MASTER	English	6	Life stories are important historical documents providing insights into the social and cultural spirit of the times, without representing any objective historical 'truth'. As Arnold and Blackburn (2004) remind us, India provides a critical site for discussing life histories. The course draws attention to the diverse forms in which life narratives and expressions of selfhood were formulated in different historical periods in India, thus dismantling the long-held belief that the paradigm of collectivity had negated or marginalized the sense of individuality. Focusing on colonial and postcolonial narratives in India, this course analyses certain life stories in order to understand how these can be used for reconstructing history.	30+12 h	I semester	NO		sanjukta.dasgupta@uniroma1.it	https://www.lettere.uniroma1.it/users/sanjukta-das-gupta
SOCIAL HISTORY OF MODERN AND CONTEMPORARY INDIA B	Arts and Humanities	MASTER	English	6	This course will examine some of the key themes in the social history of colonial India, with a focus on identity politics in the critical fields of caste, race and religion, and explore the linkages between them. Central to the course will be the socio-economic and political transitions experienced by Dalit and Adivasi communities in colonial and post-colonial India, highlighting the diverse representations of their histories and contemporary life experiences. Through an analysis of caste stratification, religious reforms, and the construction of 'tribe', the course will highlight their implications on constructions of nationalism, and on debates around 'tradition' and 'modernity'.	30+12 h	II semester	NO		sanjukta.dasgupta@uniroma1.it	https://www.lettere.uniroma1.it/users/sanjukta-das-gupta
Clinical nursing in pediatric area	Medicine and Psychology	Bachelor	English	2	At the end of the course the student will be able to know and understand the therapeutic and care processes in the Child Mental Area. In particular, the student will be able to know and understand the specific training objectives of the training of professionals in the field of nursing discipline concerning the assistance of pediatric patients.	24 h	II semester	5	No	valentina.biagioli@uniroma1.it	https://web.uniroma1.it/dip_dmcm/
Methodology of nursing research & Nursing evidence	Medicine and Psychology	Bachelor	English	2	At the end of course the student will be able to know and understand and gain awareness of the usefulness of applying the statistical methodology to research.In particular, the student will be able to understand the components of a research process, research the available evidence in the literature, critically analyze a research article, Use evidence to make care decisions, describe and document the data.	24 h	I semester	5	No	marco.dimuzio@uniroma1.it	https://web.uniroma1.it/dip_dmcm/
Clinical pathology	Medicine and Psychology	Bachelor	English	1	At the end of the course the student will be able to know and understand the role of the immune system in the pathophysiological mechanisms of the main organs and systems. In particular, the student will be able to know and understand the diagnostic, prognostic and therapeutic role of the immune system and of the diseases due to its dysregulation and to understand the clinical significance of some laboratory requests	12 h	II semester	5	No	enrico.giarnieri@uniroma1.it	https://web.uniroma1.it/dip_dmcm/
General pathophysiology	Medicine and Psychology	Bachelor	English	1	At the end of the course the student will be able to know and understand and relate the causes and effects of certain pathologies. In particular, the student will be able to: begin to have basic knowledge on the main human disease, be able to manage and integrate this knowledge with some methodological aspects of laboratory medicine, begin to develop a correct methodology to orientate in this field	12 h	II semester	5	No	vincenzo.visco1@uniroma1.it	https://web.uniroma1.it/dip_dmcm/
General pathology	Medicine and Psychology	Bachelor	English	2	At the end of the course the student will be able to know and understand and relate the causes and effects of certain pathologies. In particular, the student will be able to: begin to have basic knowledge on the main human disease, be able to manage and integrate this knowledge with some methodological aspects of laboratory medicine, begin to develop a correct methodology to orientate in this field	24 h	II semester	5	No	vincenzo.visco1@uniroma1.it	https://web.uniroma1.it/dip_dmcm/
Theory and Psychodinamic Models	Medicine and Psychology	Master	English	6	The course gives a panoramic view of the development of the clinical psychoana-lytic thought from its origins to the current views that integrate the clinical models with empirical research identifying the main psychopathological areas of application of these theories for both clinical assessment and intervention, with a specific attention to psychoanalytic theories of sexual disorders and paraphilic conducts.	60 h	I semester	40	No	riccardo.williams@uniroma1.it	https://web.uniroma1.it/dip42/
Clinical aspects of paraphilias and of the deviance	Medicine and Psychology	Master	English	6	The objectives of this course aim to give a global overview of the field of sexual deviance. In particular, psycho-social criteria will be used for the definition and classification of unusual sexual behaviors, paraphilic behaviors and interests, up to the diagnosis of paraphilic disorders. Both evaluation and therapeutic aspects will be addressed.	48 h	II semester	40	No	guido.giovanardi@uniroma1.it	https://web.uniroma1.it/dip42/
Perceptual and cognitive processing	Medicine and Psychology	Master	English	6	The course aims to provide basic methodological and theorical information on perceptual and cognitive functioning, learning and development. The interpretability of behavioural measures and their limits, and the nature of the probabilistic behaviour of decision-making are discussed. The course expands on the nature of the information processing stages in perception and cognition. Prac-tical and theorical competences in psychophysics and cognitive science are provided, as well as knowledge of the main computational models of the mind. These concepts and tools are presented in the context of understanding and assessing both adults and developing cognitive abilities	48 h	II semester	40	Bachelor Degree	marialuisa.martelli@uniroma1.it	https://dippsi.psi.uniroma1.it/
Experimental methods in Social Neuroscience	Medicine and Psychology	Master	English	6	This course aims at providing an up-to date overview of the theories and research areas in the field of Social Neuro-science and offering a comprehensive view of the methods used in the field. In particular, it aims to promote an understanding of the social, clinical and technological potentiality of studies concerning social functions in neurotypical individuals, in the typical and atypical development, and in patients with psychiatric problems or with brain lesions	48 h	I semester	40	Bachelor Degree	matteo.candidi@uniroma1.it	https://dippsi.psi.uniroma1.it/
Cognitive Neuroimaging	Medicine and Psychology	Master	English	6	The course aims at providing a solid background on the main techniques used to image the human brain in vivo, and of their application in the cognitive neuroscientific field. Students will be provided a critical view of the validity and the limits of knowledge on the human mind derived by the application of such methods; a series of conceptual tools to personally and critically evaluate results obtained by research in the field of cognitive neuroimaging..	48 h	II semester	40	Bachelor Degree	gaspare.galati@uniroma1.it	https://dippsi.psi.uniroma1.it/
HISTORY OF INTERNATIONAL AND EUROPEAN RELATIONS	Political Sciences Sociology Communication	MA	English	9	The objective of the course is to offer adequate knowledge for the analysis and understanding of the evolution of the international system starting from the Paris Peace Conference and the end of the colonial system. Particular attention will be given to the history of the European integration process and to the continental dynamics. Through the study of the topics covered, students will acquire the knowledge and interpretative skills necessary to understand the main dynamics of the history of international relations. The inclusion of verifications in itinere in the form of short presentations and discussions in the classroom by students should also provide the necessary critical elements and a concrete ability to analyze.	72 h	II semester	no	no	no	alessandro.vagnini@uniroma1.it	1058948 6 - HISTORY OF INTERNATIONAL AND EUROPEAN RELATIONS | Catalogo dei Corsi di studio (uniroma1.it)
EUROPEAN UNION LAW AND HUMAN RIGHTS	Political Sciences Sociology Communication	MA	English	9	The course aims at providing students with the knowledge that is necessary to comprehend the structure of the European Union and the functioning of its institutions, scope and effects of the EU legal sources with particular regard to the protection of fundamental rights in the external dimension of the Union's action in the perspective of sustainable development. The course is based on the method of legal analysis of institutions, normative acts and procedures. Students will acquire the skills necessary to read and comprehend EU legal acts and European Court of Justice judgments and opinions, as well as national legislative and judiciary acts. Moreover, they will be able to apply the acquired skills in the context of future legal research as well as in the context of professional activities. The acquired skills will enable students to critically analyze the EU policies and reach conclusions in autonomy on the basis of a rigorous application of the scientific method of legal analysis. The constant involvement of students during classes, including through the possibility to present individual or group researches on specific topics and the participation in discussions will develop the students' communication skills. The course aims at supporting students in developing a proper study method, which will enable them to address, analyze and learn complex matters.	72 h	II semester	no	no	no	alessandra.mignolli@uniroma1.it	1052211 - EUROPEAN UNION LAW AND HUMAN RIGHTS | Catalogo dei Corsi di studio (uniroma1.it)
COMPARATIVE POLITICS	Political Sciences Sociology Communication	MA	English	9	Goals: The main objective of the course is to provide an advanced competence of the political processes. The course will dedicate a specific part to the relationship between systems of expertise and politics, in a comparative key. Knowledge and ability to understand: Students will be able to understand the functioning of different political systems, with particular attention to the functioning of parties, institutions, interest groups and think tanks. Ability to apply knowledge and understanding: The student will be enabled to understand the provision of the various political regimes: democratic, authoritarian, totalitarian. Autonomy of judgment: The student must possess the fundamental skills that allow him / her to analyze, in an autonomous and critical way, a decision making process and the functioning of the institutions. Communication skills: The essential objective is to build specialized communication skills in the field of political science, which facilitate the professionalization of the student's skills. Learning ability: learning skills will be developed and tested on different levels: through interaction with the class and the teacher, experts in the field, construction of reports and presentations in the classroom. Expected results: The goal is to create the first knowledge that can be spent at institutions, parties and interest groups	72 h	II semester	no	no	no	marco.morini@uniroma1.it	1052210 - COMPARATIVE POLITICS | Catalogo dei Corsi di studio (uniroma1.it)

GLOBALIZATION HISTORY	Political Sciences Sociology Communication	MA	English	9	The aim of the course is to provide the basic knowledge for the analysis and understanding of the evolution of the international political system since the 1840s, focusing on colonialism, decolonization, and globalization. Through the study of these topics students will be able to acquire the knowledge and the interpretative skills necessary to understand the main dynamics of history of international relations and the globalization process. The inclusion of on-going audits in the form of short presentations and discussions by the students will also provide the necessary critical elements and a concrete capacity for analysis.	72 h	II semester	no	no	no	alessandro.vagnini@uniroma1.it	1052207 - GLOBALIZATION HISTORY | Catalogo dei Corsi di studio (uniroma1.it)
Business Information Systems	Faculty of Economics	Master	English	9	The basic aim of the course is to provide students with the theoretical and technical knowledge in order to understand and use the tools and models that are based on the management of information systems. Students will be provided with the information concerning the current business models, the ways to increase competitive advantage with IT and MIS, how to manage and understand databases and data warehouses, which is the role and the advantage of the decision support systems, which may be the advantage of entering in the electronic commerce, how a system may be developed with information systems, which is the role played by a dynamic enterprise, how to protect data and which are the future trends. All elements cited above will be analyzed under an economic more than technical point of view aiming to understand which may be the effects on costs and on the efficiency of the organization.	72 h	II semester	no	no	no	Fabrizio D'Ascenzo	https://web.uniroma1.it/dip_management/node/5598
Digital Transformation and Data Management	Faculty of Economics	Master	English	9	The aim of this course is twofold: to provide students and practitioners with the basic knowledge for understanding the complexity of the challenges proposed by new digital technologies and introduce the tools for managing data coming from the business environment. to introduce the students to the concepts of innovation and digital entrepreneurship. The module will benefit of the contributions coming from managers, researchers and innovators in order to raise the awareness regarding the disruptive nature of technological developments and develop the skills required to drive the transformation within enterprises.	72 h	I semester	no	no	no	Francesco Bellini	https://web.uniroma1.it/dip_management/prof-francesco-bellini-0
Business Plan	Faculty of Economics	Master	Italian	9	Obiettivo del corso è fornire agli studenti gli strumenti manageriali necessari alla costruzione, analisi e valutazione del Business Plan. A tal fine saranno indagate le principali problematiche della gestione aziendale sia sul piano qualitativo che quantitativo.	72 h	I semester	no	no	no	Rosa Lombardi	https://web.uniroma1.it/deap/informazioni-su-rosa-lombardi
Economia Politica (canale A-D)	Faculty of Economics	Bachelor	Italian	9	Il corso si propone di fornire agli studenti i concetti di base della moderna teoria economica. Nelle lezioni frontali, l'esposizione teorica è integrata dalla descrizione dei tratti più rilevanti dell'economia contemporanea in modo da pervenire a un'adeguata comprensione del funzionamento dei moderni sistemi economici. Nella prima parte del corso, vengono esaminate le scelte dei consumatori e delle imprese con l'obiettivo di illustrare le forze che determinano l'allocazione delle risorse e la determinazione delle quantità e dei prezzi nei singoli mercati. L'analisi si basa sullo studio dei comportamenti individuali di consumatori e imprese e dell'interazione tra agenti economici in diverse forme di mercato (concorrenza perfetta, monopolio). La seconda parte concentra l'attenzione sul funzionamento dell'economia nel suo complesso. L'obiettivo è di fornire gli strumenti per l'analisi e la spiegazione dell'andamento delle principali variabili macroeconomiche (produzione, occupazione, consumi, investimenti, tassi d'interesse, bilancio pubblico).	72 h	I semester	no	no	no	Luigi Ventura	https://corsidilaurea.uniroma1.it/it/users/luigiventurauniroma1it
Diritto Commerciale	Faculty of Economics	Bachelor	Italian	9	Evoluzione storica e normativa del Diritto commerciale; Impresa e imprenditore; Categorie di imprenditori; acquisto qualità imprenditori; statuto dell'imprenditore commerciale; l'azienda; i segni distintivi; la proprietà intellettuale; concorrenza; contratti d'impresa; consorzi; gruppo europeo di interesse economico, associazioni temporanee d'imprese, reti d'impresa; titoli di credito; società e figure affini; società di persone: società semplice, società in nome collettivo, società in accomandita semplice; società di capitali: società per azioni, società in accomandita per azioni, società a responsabilità limitata; società con azioni quotate nei mercati regolamentati; società cooperative e mutue assicuratrici; trasformazione, fusione e scissione; società europee, gruppi.	72 h	II semester	no	no	no	Claudia Tedeschi	https://web.uniroma1.it/deap/informazioni-su-claudia-tedeschi
HOUSING POLICIES, STRATEGIES AND TOOLS FOR URBAN REGENERATION	Architecture	Master	English	8		100h / total 14 weeks	II semester	10	no	Yes	francesca.rossi@uniroma1.it	https://www.architettura.uniroma1.it/
URBAN DESIGN STUDIO FOR REGENERATION	Architecture	Master	English	10		125h / total 14 weeks	I semester	10	yes, sending an email to the professor	Yes	marika.fior@uniroma1.it	https://www.architettura.uniroma1.it/
SUSTAINABLE DESIGN FOR GREENER CITIES	Architecture	Master	English	8		100h / total 14 weeks	II semester	10	no	Yes	mariabeatrice.andreucci@uniroma1.it	https://www.architettura.uniroma1.it/
Laboratory of Product Representation	Architecture	Master	English	9	General goals: This represents a basic course about Design Representation, 3D Modeling and Computational Design Specific goals: - Experiment some different aspects of the production process of product design; - Acquiring the ability to understand 3D space: - Control the dual path of design, from real to virtual and back - Learning 2D/3D modelling approaches; - Acquiring 3D Imaging skills; - Managing technical drawing and rendering simulations; - Preparing a presentation of design products Knowledge and understanding: The student will acquire: 1. The ability to observe and understand the relation between product and space. 2. The knowledge to manage different types of models, supporting all possible purposes in the path of knowledge and visualization of the product; 3. The capabilities for using correct pictures both as data source for analysis and final purpose of communicating 3D models. Applying knowledge and understanding: The knowledge acquired is basic in Product ande Service Design field, but it can be expanded to Architecture and Communication domain Communication skills: Developing students' ability to communicate advanced results in the field of Product Design Ability of learning: Knowledge about Design Representation is necessary to understand the relation between products and environment, evaluating their capacities and defining a geometrical schema to simulate reality, supporting both project and analysis path.	72h / total 14 weeks	I semester	10	yes, sending an email to the professor	Yes	m.russo@uniroma1.it	https://www.architettura.uniroma1.it/
Advanced Design Studio	Architecture	Master	English	12	This is a team-based studio focused on the exploration of the contemporary changes in the structure of markets, as well as, of the emerging forms of production-distribution, which require also changes in the design approaches and in the design activities results. The packaging industry is the Design topic. The design purpose is to investigate the future of the packaging starting from its historical evolution, replying to the more urgent needs and applying a systemic approach to innovation. At the same time, in order to involve the students in an advanced design process, the follow aspects will be taken in account: from social point of view, the phenomenon of self-production and consciousness consumption (DIY, makers, critical mass, fabing, ecc.); from technological point of view, the improvement of new manufacturing (digital fabrication, advanced manufacturing, crowd-sourcing); from economic point of view, the phenomenon of open-sourcing and the sharing-economy (crowd-sourcing, social networking, botton-up economy); from environmental point of view, the phenomenon of the zero-impact, zero-waste and zero-resources.	120h / total 14 weeks	II semester	10	yes, sending an email to the professor	Yes	loredana.dilucchio@uniroma1.it	https://www.architettura.uniroma1.it/