



UNICAMILLUS

**CALL FOR APPLICATION FOR THE ADMISSION OF EU AND EQUIPARATED STUDENTS FOR ADDITIONAL SLOTS FOLLOWING THE MINISTERIAL DECREE No. 994 OF 28<sup>th</sup> JULY 2023 TO THE SIX YEAR DEGREE COURSE IN MEDICINE AND SURGERY IN ENGLISH FOR THE ACADEMIC YEAR 2023-2024**

**Approved by Rector's Decree no. 219 of 4th August 2023**

**Article 1 – Available slots and admission requirements**

For the academic years 2023-2024, the Saint Camillus International University of Health Sciences (hereinafter “UniCamillus”, the “Academic Institution” or the “University”) is holding a public competition for admission to the first year of the Six Year Degree Course in Medicine and Surgery in English to cover additional slots by virtue of Ministerial Decree no. 994 of 28<sup>th</sup> July 2023 and any other vacant slots from previous admission calls:

<b>Six-Year Degree Course in:</b>	<b>Available slots EU and Equiparated students</b>
Medicine and Surgery	158 <sup>(1)</sup>

Citizens from Norway, Holy See, Iceland, Liechtenstein, Helvetic Confederation, and Republic of San Marino are considered as EU candidates.

Candidates in possession of a secondary school diploma on the date of the test are admitted participating in the admission test.

For candidates who have obtained a secondary school diploma belonging to a foreign system, foreign qualifications are considered valid if obtained after at least 12 years of schooling provided that they are accompanied by the Declaration of Value issued by the Italian diplomatic representations.

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<sup>1</sup> Please note: pursuant to Article 4 of the aforementioned Ministerial Decree no. 994 of 28th July 2023, "Any vacant slots in the ranking of candidates from Non-EU countries residing abroad [...] shall be made available within the slots allocated to students from EU and non-EU countries residing in Italy [...], in time for the relevant rankings to be filled and without prejudice, where possible, to any compensation between universities within the same quota reserved for students from Non-EU countries residing abroad".

Therefore, should further vacancies result from the selection procedure of Non-EU candidates who have taken part in the specific Call for applications, in addition to those already indicated in the present Call, these will be assigned to EU and equivalent candidates in a useful position in order of ranking list.

In the event that the local school system provides for 11 years or 10 years of schooling, the qualification is valid if integrated with one or two years of university, provided that all the exams scheduled for those academic years have been passed.

Candidates who do not possess or do not present, within the terms indicated below, a suitable qualification, pursuant to current legislation, lose the enrolment benefit or forfeit enrolment if already admitted and are not entitled to a refund of the amount paid.

With reference to the recognition of foreign qualifications, the University will take into account the indications provided by the Ministry of Education, University and Research "Procedures for entry, residence and registration of foreign / international students to of higher education in Italy for the academic year 2023-2024" (<http://www.studiare-in-italia.it/studentistranieri>).

## **Article 2 – Application submission**

Registration for the admission test will be possible from 9 a.m. on 7th August 2023 until 1 p.m. on 2<sup>nd</sup> October 2023.

Candidates who meet the requirements set out in Article 1 must submit their application exclusively online by connecting to the GOMP student portal, link <https://unicamillus-studenti.gomp.it/>, and carry out the enrolment procedure following the instructions provided in the "Guide for the submission of the admission application" published on the website.

Any candidate wishing to register for the admission test before reaching the age of majority must follow the procedure with the assistance of a person exercising parental authority.

During the registration phase, in addition to entering all the data required by the procedure, the upload of the privacy form will be allowed.

The application form for entry to the selection, once confirmed, cannot be modified or supplemented with further documentation. The candidate is responsible for the information provided in filling in the application form in all its parts. We therefore recommend that you carefully check the documentation before submitting your application. The candidate is responsible for the information provided in the application form. The presence of false, incorrect or omitted information will result in immediate exclusion from the selection process or, if already passed, cancellation from the list of those admitted to the degree course.

**IMPORTANT:** Applications received after the deadline and/or incomplete and/or with incorrect information present will NOT be evaluated. By submitting the application form for the selection process, the candidate authorises Unicamillus to carry out checks with the bodies and authorities that issued or validated the qualifications declared. Candidates are reminded that anyone making false statements, producing false documents or using them is subject to the penal sanctions provided for by Article 76 of DPR 445/2000.

In the event of any difficulties in the call registration procedure, it is sufficient send an e-mail to [relations@unicamillus.org](mailto:relations@unicamillus.org) for assistance.

For all candidates, the test participation fee, amounting to Euro 170.00 (one hundred and seventy),

is not refundable under any circumstances (even in the event of non-participation in the admission test). Payment of the fee must be made when submitting the application directly on the GOMP portal by accessing the Fees > Payments section (CBILL bulletin or PagoPA). The application is considered finalised only if completed with payment of the contribution, which must be made no later than the deadline indicated in this article. The application received by the deadline, but without payment of the fee or with payment received after the deadline, will not be evaluated under any circumstances and the candidate will therefore be excluded from the list of those admitted to the test.

PLEASE NOTE: At the end of the application procedure, the system will issue a submission code that the candidate must keep as it will be necessary to verify their ranking at the time of its publication (see art. 6 of this call)

### **Article 3 – Support for candidates with disabilities or specific disorders**

Candidates with disabilities or with specific learning disabilities (SLD), in relation to the specific difficulties attested by medical certification, can make explicit request for aids and/or additional time compared to those established for the other candidates, as well as further measures to guarantee equal opportunities in carrying out the entry test. “Candidates with disabilities” shall mean blind candidates, suffering from absolute blindness or with a visual residual not exceeding one tenth in both eyes; deaf candidates, suffering from deafness from birth or before learning the spoken language; candidates with a civil disability percentage equal to or greater than 66%; candidates in possession of the handicap certification as from Italian Law 104/92 as amended by Italian Law 17/99. These conditions must result from an appropriate medical certification issued by a competent public health authority. The certifications will be accepted only if issued in Italian or English language.

“Candidates with SLD” shall mean candidates with a diagnosis of dyslexia, dysgraphia, dyscalculia, dysorthography, resulting from appropriate clinical certification, issued by no more than three years by the National Health Service, or by specialists or structures accredited by the regional health service. The additional time allocated to candidates with SLD will be 30% more than the time set for admission tests, in accordance with Italian Ministerial Decree 5669/2011.

The request and the relative medical documentation must be uploaded during the registration phase of the admission test on the GOMP portal at the dedicated section, by the deadline for submitting the application indicated in Article 2 of this call, following the instructions provided in the "Guide for submitting the admission application". Applications and medical documentation received by other modalities (mail, PEC, email, etc.) will not be acquired or evaluated.

### **Article 4 – Topics of the admission test and selection criteria**

The admission test consists of a multiple-choice written test that presents five answer options, among which the candidate must identify only one, discarding incorrect, arbitrary or less probable

conclusions. It consists of 60 questions delivered in English on the basis of the programs indicated in Annex A and divided as follows:

- 15 questions of logical reasoning and understanding of the text;
- 35 scientific questions (10 on biology, 10 on chemistry, 5 on mathematics and 10 on physics);
- 10 questions on humanitarian topics pending the specific humanitarian mission of the University.

The admission test will last 60 minutes.

For the evaluation of the admission test, a maximum score of 90 (ninety) points is assigned according to the following criteria:

- 1,5 points for each correct answer;
- minus 0,25 points for each wrong answer;
- 0 points for each answer not given or for multiple markings or, in any case, for all non-unique answers.

#### **Article 5 – Conduct of UniCamillus tests**

The written test will be held remotely, i.e. in a home-based manner from a candidate's workstation and via a remote surveillance platform on 9<sup>th</sup> October 2023.

The University reserves the right to organise additional sessions and to change the dates, times, locations of the admission test, dates of publication of results and test conduction methods, should it be necessary for organisational reasons and/or by ministerial provision, notifying all competitors by means of public notices on the University website.

In the event of a postponement, provided that it has been decided earlier than the deadline for applications for the admission test, the University reserves the right to postpone the deadlines for submitting applications and, if deemed appropriate, to amend the other dates set out in this Call accordingly.

#### **General indications for participation in the test**

From the third day before the start of the test sessions, all candidates will receive, from [convocazioni@ilmiotest.it](mailto:convocazioni@ilmiotest.it) to the email address used when registering their personal data, the instructions for taking the test and the instructions to be followed to meet the technical requirements.

If no message is received from [convocazioni@ilmiotest.it](mailto:convocazioni@ilmiotest.it), you should check that the message is not stored in your junk mailbox. Should it not be present in junk mail either, a report should be made to [convocazioni@ilmiotest.it](mailto:convocazioni@ilmiotest.it) requesting a new email to be sent.

Candidates are required to check the level of quality and continuity of the IT connection at the location where they will take the test and, in any case, that of the surroundings in which the location is located.

Any malfunction of the IT connection occurring during the performance of the test and affecting its performance wholly or partially shall be the sole and exclusive responsibility of the candidate.

The candidate is therefore personally responsible for the quality and continuity of the connection with his/her workstation and the isolated room.

The Commission may at any time order the exclusion of a candidate if any malfunction of the connection signal makes it impossible to control the private environment in which the test is being held.

Candidates are obliged to observe any other instructions of a technical nature that may be imparted by the company running the test, in both the preparation phase and test-taking phases, paying particular attention to connection times to ensure punctuality and contextual conformity of the proceedings for each scheduled session.

By activating the video link, the candidate consents to the recording of images and to the recording of any other personal data enabling the reconstruction and tracking of what happened during the competition examination.

#### Technical requirements for taking the test

To take the test, the candidate must have:

- a personal computer (operating system Windows 8, or later, or LINUX) or MAC (MAC-OS 10.14, or later) equipped with webcam and microphone and compulsory use of GOOGLE CHROME (min. version 81.0) as browser;
- Internet connectivity with a minimum upload and download speed of 1.5 Mbps;
- a smartphone or tablet (Android min v.4.1 - iOS min v.8) equipped with a cam and on which an APP can be downloaded.

The use of Wi-Fi is also recommended. A subsequent email will ask you to download an APP to your smartphone/tablet (34 MB) from Google Play or the App Store (depending on whether you are using an Android or iOS smartphone).

Please note that the tablet can be used only to replace the smartphone, not the personal computer (or Mac). Please note that, should a candidate carry out the checks with a workstation that has inferior technical specifications than the minimum requirements set out in this call, the possible passing of this stage **does not guarantee** that the candidate shall be able to take the competition test without the prescribed equipment.

#### Performing the test

From the third day prior to the test, candidates will receive an email sent from [convocazioni@ilmiotest.it](mailto:convocazioni@ilmiotest.it) containing the instructions on how to carry out the check requirement; specifically, candidates must:

- install the Google Chrome Proctor Exam plugin required to ensure video surveillance during the test;
- install the Proctor Exam App on the smartphone (or tablet) that will be used during the test.

Candidates must follow the procedure to test the correct setup and operation of:

- personal computer/Mac audio and microphone;
- personal computer/Mac webcam;
- smartphone/tablet webcam;
- Internet connection.

At the end of the check requirement, applicants will receive a second email from [convocazioni@ilmiotest.it](mailto:convocazioni@ilmiotest.it) with the link to access the exam and information about the relevant date and time.

The indicated time must be strictly adhered to in order not to slow down the identification operations preceding the examination.

*Please note: the candidate is invited to keep the data contained in the latter and-mail as it also provides information and credentials to view your test that will be made available after the publication of the ranking on the institutional site of the University.*

### Conduct of the test

On the day of the test, prior to its start, the procedure involves setting up and connecting the instruments already checked during the “check requirement”, followed by the video shots of the location and surroundings in which the test is to take place.

Next, candidates will be required to plug the smartphone into a power socket and position it behind them so that it always frames the surroundings.

During the identification procedure, candidates shall:

- show the identification document via the personal computer webcam and take a photo of it;
- take a picture of their face inside a template;
- send both photos that are captured by the platform.

After identification, candidates will be able to access the link to the test and will have time to read the operating instructions while waiting until the start of the test. The waiting time depends on the progress of the identification of all the convened candidates.

Any candidate who, for any reason, logs on after the end of the identification stages or without a valid identity document will not be admitted to the test.

A candidate who is absent from the test after the closing of the identification procedures will be considered a dropout.

As soon as the Examination Commission authorises the start of the test, the “Start test” button will appear on the left-hand side of the screen.

Only then, by clicking on the appropriate button, will the candidate begin the test. At the end of the test, the candidate must click on the “Close test” button and log off.

Once returned to the start page, the candidate must click on the “Finish Exam” blue button at the

top right.

The use and consultation of other applications, browsers or web pages is not permitted. Therefore, it is necessary to close all web pages and any open programs. Platform pages, on the other hand, must always remain open.

In the event of technical problems, the candidate can use the live chat at any time. During the test, candidates may only use their personal computer/Mac without additional screens, keyboard and mouse.

The use of two blank sheets of paper and a pen to carry out any calculations is allowed, subject to verification by the remote Proctor during identification.

### Grounds for exclusion from the test

Candidates are required to comply with the following provisions on pain of exclusion from the test:

1. the room must be adequately lit;
2. the use of earphones or other technological devices such as smartphones, smartwatches, calculators or glasses with a camera or video camera is not allowed;
3. the use or consultation of other applications, browsers or web pages is not allowed;
4. the use of books, notes or handouts is not allowed;
5. no person other than the candidate may be present in the room;
6. interaction with other persons is not allowed;
7. it is not permitted to leave the room for any reason, not even for toilet breaks;
8. the use of earplugs is not allowed.

### **Article 6 – Final ranking list**

UniCamillus will publish the final ranking by 12<sup>th</sup> October 2023 on the official University website.

The candidate will be able to check his position in the ranking through the submission code issued by the Gomp system at the time of registration for the test (as per article n. 2 of this call).

Candidates who scored less than 20 points will not be admitted, regardless of their position in the ranking.

The winning candidates are those scoring more than 20 points and ranking favourably with reference to the number of available slots as from Article 1 of this Call.

In the event of a tie in the score, the candidate who obtained the highest score in the solution of humanitarian questions prevails. In the event of a further equal score, the youngest candidate will prevail.

## **Article 7 – Enrolment and scrolling procedure**

Candidates who have acquired the right to register in the first year must, from 16<sup>th</sup> to 20<sup>th</sup> October 2023 within 1 p.m., finalise online registration. This procedure entails that the University shall acquire the following documentation:

- a) registration application submitted to the Rector and acceptance of the UniCamillus Code of Ethics;
- b) Student Contract (completed by the candidate or, if under-age, by a person exercising parental responsibility);
- c) privacy information disclosure;
- d) digital photo;
- e) valid identity document and tax code and, if foreigners legally residing in Italy, a valid residence permit;
- f) certification of the secondary school-leaving certificate or a true copy thereof or, provisionally, self-certification in accordance with Presidential Decree no. 445/2000 regarding possession of the secondary school diploma;
- g) (if any) withdrawal from studies in another University;
- h) payment of registration fee administration costs, amounting to EUR 14,000.00 (fourteen thousand/00) equivalent to the sum of the first and second instalments of the annual fee. The third and final payment for first-year registration, amounting to EUR 7,000.00, must be paid by 24<sup>th</sup> January 2024;
- i) payment of stamp duty for EUR 16.00 (sixteen/00);
- j) payment of the tax imposed by the Lazio Regional Authority.

The payments indicated in letters h), i) and j) must be made exclusively through the payment systems available on the GOMP student portal. Other payment systems are not allowed.

The registration procedure must be completed following the indications in the guide attached to this notice ("Guide to registration"). Any assistance requests during the registration process must be sent exclusively by e-mail to [office@unicamillus.org](mailto:office@unicamillus.org). Requests sent to different institutional addresses of the University will not be considered.



Please note: For the completion of the registration procedure it is necessary to have authentication and digital signature tools. The instruments envisaged are:

- Authentication and digital signature via **SPID** (strongly recommended and reserved for all adult students with an Italian identification document);

*or, in alternative to SPID*

- Authentication and digital signature via **OTP** (an alternative to SPID, particularly reserved for adult students who do not have an Italian identification document). The OTP authentication procedure can be easily performed, before enrolment, directly on the GOMP student portal.

In the case of a minor student, the registration procedure must be carried out by a parent or by a person exercising parental responsibility. In this case, it will be the care of the parent or the person exercising parental responsibility to have one of the above mentioned tools of authentication and digital signature.

Italian and foreign students who have obtained their high school qualifications abroad must deliver to the Registrar's Office by 31<sup>th</sup> December 2023, under penalty of exclusion, an official translation in Italian (legalised if necessary) of the qualifications, accompanied by a Declaration of Value issued by the Italian Embassy or Italian General Consulate competent for the territory in the country where the qualification was obtained. As an alternative to the Declaration of Value and the official translation into Italian, the qualification may be presented accompanied by the sworn translation in Italian or English, accompanied by the certificates of Verification and Comparability issued by CIMEA. For the issue of such certificates, the student can access the link <https://www.unicamillus.org/cimea-agreement/> and carry out the procedure provided.

Any slots not covered will be managed according to the following scrolling procedure:

- publication of the related notice on the website [www.unicamillus.org/ammissioni](http://www.unicamillus.org/ammissioni)
- those admitted for "scrolling" of the ranking must proceed with the provisions of this article by 5 PM of the third working day following the reopening of the ranking;
- the "scrolling" procedure will be repeated until the available slots are filled.

The University reserves the right to change modalities and timing of for enrolment, if it is deemed necessary for organizational reasons or for law and regulations' related reasons, notifying all candidates through public notices on the University website.

The publication of all notices about the scrolling of the rankings on the UniCamillus website is an official communication to the interested parties. Any personal communications that may be sent to the e-mail addresses, entered into the system by the candidates during the registration phase for

the test, will have the sole purpose of facilitating them in following the competition process but will in no way replace the notices published on the website of the University which is the only official communication tool of the University. It therefore remains the candidate's responsibility to verify their position by taking action in the manner and within the terms provided for in order to proceed with enrolment.

For any interlocution relating to the student's career, including administrative matters, starting from the age of majority, the University will deal exclusively with the student, therefore communications of any nature and purpose from third parties, including parents, will not be taken into consideration and in any way met.

Candidates not complying with the deadlines indicated above will be considered renouncing candidates and will lose the right to enrol. In this case, any costs already incurred, will in no case be reimbursed by the University.

In the event that enrolment has been completed remotely or outside the University spaces, the student, within the term of 14 (fourteen) days, starting from the date of planned payments, can exercise the right of reconsideration by clearly communicating to UniCamillus the will to reconsider their enrolment, by registered letter with return receipt. In case of exercise of the right to reconsider, UniCamillus will proceed to reimburse the student for the costs incurred for enrolment within the following 14 (fourteen) days - withholding for secretarial and enrolment services an amount equal to 5% of the amount paid - using the same means of payment used by the User for the payment, unless a different means of payment is expressly indicated.

Exercising the right to reconsider is equivalent to submitting a study waiver request as referred to in Article 9 of this Call.

Candidates enrolled according to the aforementioned procedure, who have not correctly answered at least six out of ten questions respectively on Chemistry, Biology and Physics of the admission test, are admitted with Additional Educational Requirements, limited to that subject, and are required to attend a specific training course aimed at filling the education requirement identified, before taking the reference exam required by the Plan of Studies, and in any case within the first year of the study course. The fulfilment of the Additional Education Requirements will be verified by the professors holding the courses.

The University does not reimburse payments made, except in the mandatory cases expressly governed by this Call and by the attached Student Contract.

## **Article 8 - Compulsory vaccinations**

Upon enrolment, the successful candidate states his commitment to be screened, within 30 days from the enrolment:

- for tuberculin vaccination (***prova tuberculina***) performed according to the Mantoux technique, according to the guidelines on the Prevention of tuberculosis (provision 17.12.1998 of the State-Regions Conference) and by the D.P.R. 7.11.2001 no. 465, regulating tuberculosis vaccination;

- for viral hepatitis B, pursuant to Law no. 165 of 27.5.1991.

Students also declare their commitment to undergo any other vaccination available, as from time to time imposed by law or deemed appropriate by the University for the safety of the students themselves and of all those with whom they may come into contact as a result of the academic activities in which they are required to participate.

Should students fail to produce the health documentation required by the call within the indicated deadline, they will be subject to the blocking of teaching activities, without prejudice to the fulfilment of all other administrative obligations set out by the University Regulations.

Should the above-mentioned documentation not be received by the deadline of 31<sup>st</sup> December, 2023, the students will be considered forfeited and will not be entitled to any refund of the amount already paid.

### **Article 9 – Withdrawal, transfer or discontinuation of studies**

Students who wish to withdraw from studies must submit an “study waiver application” by carrying out the online procedure. They must access the student portal (GOMP) with their credentials and go to the section “Careers” > “Applications” > “Study Waiver Application”.

Withdrawal from studies is deemed to be completed with the issuing of the relevant leaving certificate. This document will only be issued to students who, at the time of application, have complied with the payment of the indicated tuition fees and funding.

In the event of study withdrawal or outgoing transfer, amounts already paid up to the time of submission of the relevant application will not be refunded by the University under any circumstances.

Outgoing transfer *nihil obstat* and the issuance of the relevant documentation may only be granted to students who, on the date of application, have paid all relevant academic contributions, fees and stamps.

In any case, students who abandon studies after the start of classes are required to pay all the tuition fees and funding indicated in the “Tuition Fees and Funding” Regulations for the academic year in which they have registered, readily available on the University website at the following link: <https://www.unicamillus.org/regulations/>.

Unless the right of reconsideration is exercised, which is equivalent to the submission of a study waiver application, in the event of withdrawal or outgoing transfer, amounts already paid at the time of submission of the relevant application will not be reimbursed by the University under any circumstances.

### **Article 10 – Remarks**

Pursuant to prevailing legislation, the University reserves the right to verify the truthfulness of the declarations made by the candidate at any stage of the enrolment process. The candidate must

therefore provide all the necessary elements to allow for the appropriate verifications. If false or misleading declarations are found in the documentation submitted by the candidate, without prejudice to the sanctions provided for by the Criminal Code and the special laws on the subject and the exposure of the declarant to action for damages by the interested parties, any enrolment will be cancelled, any benefits granted will be recovered and any university fees and contributions paid will be withheld and not refunded under any circumstances.

The University reserves the right to change the location of internships both in the region and outside the region and the mode of delivery of the courses, should it be deemed useful for organisational reasons and/or health safety requirements, by publishing notices on the University's website, which is the University's only official communication channel.

Participation in the Call of application implies full and unquestionable acceptance of the provisions contained therein, including those contained in the "Student Contract", which are attached to this Call and are an integral part of it.

For legal and interpretative purposes, only the Call approved by Rector's Decree No. 219 of 4th August 2023 shall apply. The Decree is drawn up in Italian and available at the Teaching Services Office and drafted in Italian, a certified copy of which can be requested.

For all matters not indicated in this Call, please refer to the University Statute, the Teaching Regulations for the study course, and the "Tuition Fees and Contribution" Regulations for the academic year 2023-2024, which can be readily consulted on the University website at the following link: <https://www.unicamillus.org/regulations/>.

#### **Article 11 – Supervisory Committee for the regularity of the competition**

A specific provision shall appoint a Commission to ensure the regular and proper conduct of the competition procedures.

Vittorino Testa, Student Services Manager – UniCamillus University, is in charge of the procedure.

## Attachment A

### Programs related to the questions of the admission test to the degree course in Medicine and Surgery

#### Logical reasoning, problem solving and reading comprehension

Assessment of the ability to correctly use the language and logically complete a reasoning, in a coherent way with the conditions, which are expressed in a symbolic or verbal way through multiple choice questions also formulated with short propositions, discarding the wrong, arbitrary or less probable conclusions.

Analysis of cases or problems, even of an abstract nature, whose solution requires the adoption of different forms of logical reasoning.

#### Biology

The Chemistry of the living organisms.

The biological importance of the weak interactions.

The organic molecules present in the organisms and their respective functions. The role of the enzymes.

The cells as the basis of life.

Cell theory. Cellular dimensions. The prokaryotic and eukaryotic cell, animal and vegetable. Viruses.

The cellular membrane: structure and functions – the transport through the membrane.

Cellular structures and their specific functions.

The cellular cycle and the cellular reproduction: mitosis and meiosis – chromosome set and chromosome maps.

Bioenergetic.

Cellular energetic value: the ATP.

Oxidation – reduction reactions of living organisms.

The energetic processes: photosynthesis, glycolysis, aerobic respiration and fermentation.

Reproduction and hereditariness.

Life-cycles. Sexual and asexual reproduction.

Mendelian genetics: Mendel laws and their application.

Classic genetics: hereditariness chromosome theory - hereditariness models.

Molecular genetics: structure and duplication of the DNA, genetics code, protein synthesis. The prokaryotic DNA. The eukaryotic chromosome structures. The gene and the regulation of the genetic expressions.

Human genetics: transmission of the mono – polyfactorial characters; autosomal heritable diseases related to X chromosome.

The biotechnologies: recombinant DNA technology and its applications.

Hereditariness and environment.

Mutation. Natural and artificial selection. Theory of evolution. The genetic basis of evolution.

Animal and human Anatomy and Physiology.

Animal tissues.

Anatomy and physiology of the human systems and apparatus and related interactions.

Homeostasis.

## Chemistry

The structure of the matter: states of matter aggregation; heterogeneous systems and homogenous systems; compounds and elements.

Ideal gas laws.

The atom structure: elementary particles; atomic number and mass number, isotopes, electronic structure of the atom of various elements.

The periodic system of the elements: groups and periods, transition elements. Periodic properties of the elements: atomic radius, ionization potential, electronic affinity, metallic character. Relations between the electronic structure, position in the periodic system and elements property.

The chemical connection: ionic connection, covalent and metallic bond. Bond energy. Bond polarity. Electronegativity. Intermolecular connections.

Fundamentals of inorganic chemistry, nomenclature and main characteristics of the inorganic compounds, oxides, hydroxides, acids, salts.

The chemical reaction and the stoichiometry, atomic and molecular mass, Avogadro number, concept of mole and its applications, elementary stoichiometric calculations, balancing of the simple reactions, different type of chemical reactions.

The solutions: solvent properties of the water, solubility, main ways to express the concentration of solutions.

Balance in the water-based solutions.

Kinetics chemical and catalysis elements.

Oxidation and reduction: oxidation number, concepts of oxidant and reducing agents. Balance of simple reactions.

Acids and bases: acid and base concept. Acidity, neutrality and basicity of the water-based solutions.

The pH. Hydrolysis. Buffer solutions.

Basics of organic chemistry: bonds between carbon atoms, rough and structure formulas, concept of isomerism. Aliphatic, alicyclic and aromatic hydrocarbons. Functional groups: alcohols, ethers, amines, aldehydes, ketones, carboxylic acids, esters, amides. Basics of nomenclature.

## Physics

The measures: direct and indirect measures, fundamental and derivate quantities, physical dimensions of the quantities, knowledge of the decimal metric system and of the Unit Measure System CGS, Technical (or Practical) (ST) and International (SI), units of measurement (names and relations between fundamentals and derivate units) multiples and submultiples (names and values). Kinematics: kinematic quantities, various motions with particular regard to the uniform rectilinear motion uniformly accelerated, uniform circular motion, harmonic motion (for all motions: definitions and relations between connected kinematic amounts).

Dynamics: vector and vector operations. Forces, moments of forces compared to a point. Moment to a torque of forces. Vectorial composition of the forces. Definition of mass and weight. Gravity acceleration. Density and specific weight. Universal gravitation law, 1<sup>st</sup>, 2<sup>nd</sup> e 3<sup>rd</sup> principles of dynamics. Work, kinetic energy, potential energy. Energetic conservation principles. Impulse and quantity motion. Conservation principle of the motion quantity.

Fluid mechanics: pression and its measurement units (not only in the SI system). Archimede

principles.

Pascal principles. Stevino laws.

Terminology, thermodynamics: thermometry and calorimetry, specific heat, thermic capacity. Mechanisms of heat propagation. Change of status and latent heat. Ideal gas laws. First and second principle of thermodynamics.

Electrostatics and electrodynamics: Coulomb laws. Field and electrical potential. Dielectric constant. Capacitors. Capacitors in series and parallel. Direct current. Ohm laws. Kirchhoff principles. Electrical resistance and resistivity, resistance in series and parallel. Work, Power, Joule effects. Generators. Electromagnetic induction and alternating currents. Electric current effects (thermic, chemical, magnetic).

## **Mathematics**

Numerical sets and algebra. Natural, whole, rational, real numbers. Order and comparison; order of magnitude and scientific notation. Operations and their properties. Proportions and percentages. Power with external exponent, rational and their properties. Radicals and their properties. Logarithms (on the bases 10 and on the bases e) and their properties. Essentials of combinatorics. Algebraic expressions, polynomials. Special products, Nth power of a binomial, polynomials factor dissolution. Algebraical fraction. Equations and algebraical inequalities first and second degree. Equations system.

Functions: basic notions about functions and their graphical representations (domain, codomain, sign, maximums and minimums, growth and decreasing, etc.). Elementary functions: whole and fractional algebraic, exponential, logarithmic, goniometric. Multiple functions and inverse functions. Equations and goniometric inequalities.

Geometry: polygons and their properties. Circumference and circle. Measurements of lengths, surfaces and volumes. Isometries, similitudes and equivalences in the plan. Geometric locus. Measure of the angles in degrees e radians. Sine, cosine, the tangent of an angle and their special products. Goniometric formulas. Resolution of the triangles. Cartesian reference system in the plane. Distance of two points and average point of a segment. Equation of the line. Parallelism and perpendicularity conditions. Distance of a point from a line. Equation of the circumference, of the parabola, of the hyperbola, of the ellipse and their representation in the Cartesian plane. Pythagorean theorem. Euclid theorems (first and second).

Probability and statistics: distributions of the frequencies according to the type of character and main graphic representations. Concept of random experiment and event. Probability and frequency.

## **Humanistic culture and specific humanitarian mission of the University**

The specific humanitarian mission of the University: important issues linked to the shortage of health workers in many developing countries, diseases that are widespread in these countries, Bodies responsible for dealing with humanitarian problems, eminent figures who have made a contribution in these related fields and topics. The required knowledge of these topics is not a specialized one: a mere competence deriving from the reading of newspapers and other normal

means of information that commonly give news on these topics will be sufficient. In other words, these questions will be aimed at bringing out the interest of the candidates in the aforementioned issues which, if such interest exists, will certainly have been the subject of personal reading and study, albeit of an informative and non-specialist nature. Similarly, questions of general knowledge may be envisaged, in order to out a high level of social and humanistic culture deemed necessary for the quality of the personality of the healthcare professional trained by UniCamillus.