



UNICAMILLUS

## RECTOR'S DECREE

*Academic Year 2021/2022*  
no. 107 of 5 November 2020

### CALL FOR APPLICATION FOR THE ADMISSION OF EU AND EQUIPARATED STUDENTS TO THE 6-YEAR DEGREE COURSE IN MEDICINE AND SURGERY OF THE SAINT CAMILLUS INTERNATIONAL UNIVERSITY OF HEALTH SCIENCES (UNICAMILLUS) FOR THE ACADEMIC YEAR 2021/2022

#### THE RECTOR

- Given** the Statute of the Saint Camillus International University of Health Sciences (UniCamillus);
- Given** the Didactic Regulations of Saint Camillus International University of Health Sciences (UniCamillus);
- Given** the Law no. 168 of May 19<sup>th</sup> 1989 on the foundation of the Ministry of the University and Scientific Research;
- Given** the Law no. 264 of August 2<sup>nd</sup> 1999, containing "Regulations on access to University courses" and subsequent amendments and integrations;
- Given** the Law no. 189 of July 30<sup>th</sup> 2002 "Amendments on legislation on immigration and asylum" and subsequent amendments and integrations, and notably art. 26;
- Given** the Decree no. 270 of October 22<sup>nd</sup> 2004 "Amendments to the regulation containing dispositions on the didactic autonomy of the Universities", approved with Decree of the Minister of University and Scientific and Technologic Research of November 3<sup>rd</sup> 1999, no. 509;
- Given** the Ministerial Decree of March 16<sup>th</sup> 2007, which has established the classification of the Degree Courses;
- Given** The Tuition Fees and Contributions Regulations for the academic year 2021/2022 approved



UNICAMILLUS

by the Organising Technical Committee of UniCamillus on October 21<sup>st</sup> 2020;

**Given** The Resolution of the Organising Technical Committee of October 21<sup>st</sup> 2020, approving the Call for Application for the admission of EU and equiparated students to the six-year Degree Course in Medicine and Surgery of Saint Camillus International University of Health Sciences (UniCamillus) for the academic year 2021/2022.

## **DECREES**

### **Article 1**

The approval and issuing of the Call for Application annexed to this Decree, of which it constitutes an integral and substantial part, related to the admission of EU and equiparated students to the six-year Degree Course in Medicine and Surgery of Saint Camillus International University of Health Sciences (UniCamillus) for the academic year 2021/2022.

### **Article 2**

This Decree with the handwritten signature is collected in the appropriate register of this University and published on the institutional website.

**Sgd THE RECTOR**  
**Giovan Crisostamo Profita**

Rome, 5 November 2020

## **CALL FOR APPLICATION FOR THE ADMISSION OF EU AND EQUIPARATED STUDENTS TO THE 6-YEAR DEGREE COURSE IN MEDICINE AND SURGERY IN ENGLISH OF THE SAINT CAMILLUS INTERNATIONAL UNIVERSITY OF HEALTH SCIENCES (UNICAMILLUS) FOR THE ACADEMIC YEAR 2021/2022**

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

Saint Camillus International University of Health Sciences, hereunder referred to as UniCamillus, has published for the academic year 2021/2022 the public call for applications for the admission to the first year of the Degree Course in Medicine and Surgery in English language.

135 (one hundred and thirty-five) slots are available for the EU candidates and for the categories as of art. 26 of the law no. 189 of July 30<sup>th</sup> 2002 and subsequent amendments and alterations for the Degree Course in Medicine and Surgery in English.

The number of slots available may vary as a result of what will be established by Decree of the Ministry of University and Research (M.U.R.), in accordance with Law no. 264 of August 2<sup>nd</sup> 1999. The Decree of the MUR may provide for the confirmation, increase or decrease of the slots specified in this announcement. The University will make the related Ministerial Decree accessible on the University website.

The selection procedures include two test sessions: ordinary and extraordinary (if any). If, following the outcome of the registration procedures of the ordinary session, there are vacancies, an extraordinary session will be held. The number of vacancies will be published on the University website.

Citizens from Norway, Iceland, Liechtenstein, Helvetic Confederation, Republic of San Marino and Vatican City are treated as EU candidates.

Candidates in possession of a secondary school diploma on the date of the test and candidates who, on the date of the test, are attending the last year of secondary school are admitted to participate in the admission test.

For candidates who have already achieved a secondary school diploma issued by a foreign education system or are enrolled in the last year necessary to obtain it, foreign qualifications are deemed valid, if obtained after at least 12 years of schooling; these qualifications must be accompanied by the Declaration of Value issued by the Italian diplomatic authorities.

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

Candidates who do not possess or do not submit adequate qualifications within the deadlines indicated below, according to current legislation, will lose the benefit to enrol or will forfeit their enrolment - if already admitted - and have no right to the refund of the amount paid to the University.



UNICAMILLUS

With reference to the recognition of foreign qualifications, the University will take into account the indications provided by the Ministry of University and Research "Procedures for entry, stay and enrolment of foreign / international students to courses of higher education in Italy for the academic year 2020/2021" and subsequent amendments (<http://www.studiare-in-italia.it/studentistranieri>).

To those eligible ranking favourably the University will make available two series of ancillary seminars for the medical profession. The topics covered in the Seminars are not included in the academic curriculum, and will not be subject to tests, but are deemed by the University extremely useful and educational. Attendance to the seminars, therefore, although not mandatory, will be possible through univocal credentials which may be used with the maximum time flexibility according to the user's preferences.

### **Article 2 – Application submission**

Registration for the admission test will be possible:

- starting from November 9<sup>th</sup> 2020 until 26<sup>th</sup> January 2021 for the ordinary session;
- until September 29<sup>th</sup> 2021 at 1 PM for the extraordinary session (if any).

In order to complete the registration for the admission test, each candidate needs to connect to the web portal <http://www.unicamillus.org/admission-test>, register and follow the instructions.

The candidate is responsible for the information given when filling in the registration form. The presence of false, incorrect or omitted information even in only one section leads to the immediate exclusion from the test or, if already passed, the cancellation from the lists of those admitted.

Upon submission of the form for the registration to the test the candidate authorises UniCamillus to carry out checks at institutions and authorities that have issued or validated the academic qualifications attached to the application.

In case of difficulty in the registration procedure, candidates can send an e-mail to [admission@unicamillus.org](mailto:admission@unicamillus.org) for assistance.

For all candidates, the participation fee of € 170.00 (one hundred and seventy) is not refundable for any reason (also in the event the student fails to be present at the admission test). The fee for the participation in the admission test can be paid through Paypal.

The payment of the fee for access to the admission test does not complete the registration procedure. The registration process must be completed in its entirety under penalty of exclusion.

### **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



UNICAMILLUS

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 disability 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.

This request and the related medical documentation must be sent via registered mail with return receipt or hand delivered to the Registrar’s Office – UniCamillus University – Via di Sant’Alessandro – 00131 Roma, to be received no later than January 5<sup>th</sup> 2021 for the ordinary session and September 3<sup>rd</sup> 2021 for the extraordinary session, if any.

#### **Article 4 – Examination topics and admission criteria**

The admission test will be in English and consist of a multiple choice written test, with five response options, among which the candidate must identify only one, discarding the wrong, arbitrary or less likely conclusions. The test is composed of 60 questions in English, based on the programs indicated in Annex A and thus divided:

- 15 questions on logical reasoning and reading comprehension;
- 35 questions on scientific topics (10 on Biology, 10 on Chemistry, 10 on Physics and 5 on Maths);
- 10 questions humanitarian topics, given the specific mission of UniCamillus.

The admission test will last 60 minutes.

For the evaluation of the test a maximum score of 90 (ninety) points is attributed 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 multiple marking, or for all ambiguous responses.

#### **Article 5 – UniCamillus testing procedure**

The final list of the convocations to the written test will be published anonymously (but each candidate will be able to identify himself) on [www.unicamillus.org](http://www.unicamillus.org) on the following dates:

- January 28<sup>th</sup> 2021 for the ordinary session;



UNICAMILLUS

- September 30<sup>th</sup> 2021 for the extraordinary session (if any).

The written test will take place in Rome on January 30<sup>th</sup> 2021 for the ordinary session and on October 2<sup>nd</sup> 2021 for the extraordinary session (if any) at the location and time that will be communicated in the convocations to the test.

The University reserves the right to plan additional sessions, change dates, times, locations of the admission test, publication dates of results and the test delivery method, also electronically, if it is deemed necessary for organizational reasons and/or for reasons of health safety.

In case of deferment, as long as it is decided prior to the deadline for the application to the admission test, it will be possible to postpone the deadlines for the submission of the applications and, where deemed useful, accordingly modify the other dates provided for by this Call.

On the day of the written test candidates must show a valid identification document according to art. 35 of the D.P.R. December 28<sup>th</sup> 2000 no. 445.

During the test the use of mobile phones, calculators, tablets, web-connecting devices and the consultation of printed books and/or manuscripts and notes is absolutely forbidden. The possession of these devices must be reported to the operators who, if deemed necessary, might keep them and return them at the end of the test.

The use of pens or other unauthorized writing instruments is forbidden.

Non-compliance with these provisions will result in the exclusion from the test or its continuation if already begun.

### **Article 6 – Final ranking for admission**

UniCamillus will publish on the website [www.unicamillus.org](http://www.unicamillus.org) the ranking of merit ensuring the anonymity of the candidates, by the following dates:

- February 3<sup>rd</sup> 2021 for the ordinary session;
- October 7<sup>th</sup> 2021 for the extraordinary session (if any).

Each candidate can verify their position in the ranking using the unique code assigned to them when registering for the admission test.

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

The winning candidates are those scoring 20 points or higher and ranking favourably with reference to the number of available slots as from Art.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.

The candidates not admitted in the ordinary session can re-apply for the extraordinary session (if any).

### **Article 7 – Pre-enrolment Phase no. 1 (only for the ordinary session)**

Starting from February 5<sup>th</sup> 2021 and until February 12<sup>th</sup> 2021, candidates who have obtained a useful position in the ranking are required to carry out the procedure following the instructions published on the website [www.unicamillus.org/ammissioni](http://www.unicamillus.org/ammissioni) in the following ways:

- candidates ranking from position 1 to position 135 will be able to pre-enrol;
- candidates from position 136 to position 190 of the ranking will be able to pre-enrol with reserve. This pre-enrolment will be confirmed on the basis of the placement in the ranking, if slots remain available due to the non-enrolment of some of the candidates classified from position 1 to position 135;
- by the date of February 12<sup>th</sup> 2021, those admitted (from position 1 to position 135) and those admitted with reserve (from position 136 to position 190) are required, under penalty of exclusion from the ranking, to pay the first fee of Euro 6,000.00 (six-thousand) for the administrative and secretarial costs for the pre-enrolment and for the availability of the first online cycle of ancillary seminars for the medical profession;

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

- publication on the website [www.unicamillus.org/ammissioni](http://www.unicamillus.org/ammissioni) of the number of slots available due to non-enrolment or renunciation (reopening of the ranking);
- those admitted for "scrolling" of the ranking must proceed with the payment of the pre-enrolment fee of € 6,000 by 6 PM on the second day following the reopening of the ranking;
- the "scrolling" procedure will be repeated until the available slots indicated in this article are filled.

All candidates in the merit ranking with a valid ISEE (Right to study) not exceeding 55,000 euros are exempt from paying the amount of 6,000 euros to be paid by January 31<sup>st</sup> 2022 as long as they are classified among the top 10 in the general ranking as beneficiaries of the scholarships funded by UniCamillus for the Degree Course in Medicine and Surgery for the a.y. 2021/2022.

The publication of the ranking and all related notices on the university website has the value of official communication to interested parties. Any personal communications that may be sent to the email addresses entered into the system by candidates during the registration phase for the test, will have the sole purpose of facilitating in following the competition process, but will in no way replace the notices published on the website of the University. It therefore remains the

responsibility of the candidate to verify his / her position by taking action in the manner and within the terms provided for to enrol.

Candidates not complying with the deadlines indicated above will be considered renouncing candidates and will lose the right to enrol.

Pre-enrolment is considered subject to conditions until the publication of the Ministerial Decree for the allocation of available slots at UniCamillus University.

Without prejudice to what provided for by the following paragraph, the amount of the first instalment can only be refunded to candidates enrolled under conditions for whom it is not possible to confirm enrolment due to the completion of the available slots by candidates with a better ranking. The reimbursement will take place by the beginning of the 2021/2022 Academic Year. Only in this case the costs related to the availability of the two series of seminars will be covered by the University.

In case the pre-enrolment is completed in remote modality or not at the University's premises, the student, within 14 (fourteen) days from the date of pre-enrolment, can exercise the right of withdrawal, expressly informing UniCamillus regarding his intention to withdraw, through certified letter with return receipt. If the right of withdrawal is exercised, UniCamillus will reimburse the student for the amounts paid for the pre-enrolment within the following 14 days, charging an amount proportional to the activities performed until reception of the withdrawal communication (including the costs and administrative fees and of pre-enrolment born by the University), through the same means of payment employed by the User for the first payment, unless a different mean of payment is expressly indicated.

## **Article 8 – Enrolment Phase no. 2 ordinary session**

Candidates admitted to enrol in the first year of the course must, from July 6<sup>th</sup> 2021 and until July 16<sup>th</sup> 2021, complete their enrolment online and submit the following documentation:

- Enrolment application (available online) addressed to the Rector, and acceptance of the UniCamillus Code of Ethics;
- Undersigned student Contract (available online);
- Two passport-sized photographs (please indicate name and surname on the back);
- Photocopy of an identity document and photocopy of the fiscal code (foreigners legally residing in Italy must submit a valid residence permit and fiscal code);
- Certification or authenticated copy of the High School Diploma or, provisionally, self-certification;
- Proof of payment of the second instalment of the administrative and secretarial costs for the enrolment and for the availability of the second online cycle of ancillary seminars for the medical profession for an amount of Euro 6.000,00. The third and last payment for the





UNICAMILLUS

enrolment in the first year for tuition, testing sessions and all other activities related to the academic year, equal to 6.000,00 euro, must be paid by January 31<sup>st</sup> 2022;

- Privacy policy (available online);
- If enrolled in other university, please enclose the withdrawal from the studies or the statement of no impediment to the transfer issued by the university of origin;
- Proof of payment of the Regional Tax (to be paid directly to Lazio Region; please refer to the instructions available at <http://www.laziodisco.it/come-fare-per/tassa-regionale-per-il-diritto-allo-studio/>).

Italian and foreign students who have obtained their high school qualifications abroad must deliver to the Registrar's Office by August 6<sup>th</sup> 2021, 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 produced.

Candidates not complying with the deadlines indicated above will be considered renouncing candidates and will lose the right to enrol.

Candidates enrolled according to the aforementioned procedure, who have not correctly answered at least 6 out of 10 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. The fulfilment of the Additional Education Requirements will be verified by the professors holding the courses.

**The payments made will not be refunded except in the cases expressly governed by the law or indicated by this Call.**

Eligible candidates, starting from July 19<sup>th</sup> 2021, will compete for any slots made available due to post-enrolment renunciations (scrolling of the ranking). The number of candidates recalled at each scrolling is published on the university website [www.unicamillus.org/ammissioni](http://www.unicamillus.org/ammissioni).

The eligible candidate, no later than 48 hours after the publication of the scrolling notice, has the possibility to enrol by paying the amount of 12,000 euro, equal to the sum of the costs as indicated under letter c) of Art. 7 and under letter f) of Art.8. The third instalment of the fees for the Academic Year 2021-2022, of € 6.000,00 must be paid by January 31<sup>st</sup> 2022.

#### **Article 9 – Enrolment extraordinary session (if any)**

Successful candidates within 5 working days from the publication of the results must proceed with online enrolment by also submitting the following documentation:

- Enrolment application (available online) addressed to the Rector, and acceptance of the UniCamillus Code of Ethics;
- Undersigned student Contract (available online);



UNICAMILLUS

- Two passport-sized photographs (please indicate name and surname on the back);
- Photocopy of an identity document and photocopy of the fiscal code (foreigners legally residing in Italy must submit a valid residence permit and fiscal code);
- Privacy policy (available online);
- If enrolled in other university, please enclose the withdrawal from the studies or the statement of no impediment to the transfer issued by the university of origin;
  
- Certification or authenticated copy of the High School Diploma or, provisionally, self-certification;
- Copy of the payment of the amount of € 12.000,00, equal to the sum of the costs related to letter c) of Art. 7 and letter f) of Art. 8;
- Proof of payment of the Regional Tax (to be paid directly to Lazio Region; please refer to the instructions available at <http://www.laziodisco.it/come-fare-per/tassa-regionale-per-il-diritto-allo-studio/>).

Italian and foreign students who have obtained their high school qualifications abroad must deliver to the Registrar's Office by the beginning of the Academic Year 2021-2022, 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 produced.

Candidates not complying with the deadlines indicated above will be considered renouncing candidates and will lose the right to enrol.

Any vacant slots will be managed according to the following scrolling procedure:

- Publication on [www.unicamillus.org](http://www.unicamillus.org) of the number of slots available due to missed registrations or withdrawals (reopening of the ranking);
- those admitted for "scrolling" of the ranking must proceed with what provided for in this article by 6 p.m. of the day following the reopening of the ranking;
- the "scrolling" procedure will be repeated until the available slots are filled.

Candidates not complying with the deadlines indicated above will be considered renouncing candidates and will lose the right to enrol.

Candidates enrolled according to the aforementioned procedure, who have not correctly answered at least 6 out of 10 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. The fulfilment of the Additional Education Requirements will be verified by the professors holding the courses.



### Article 10 - Mandatory vaccinations

Upon enrolment, the successful student states his commitment to be screened, within 60 days from the enrolment:

- for tuberculin vaccination (*prova tubercolina*) 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.

The student also declares his/her commitment to undergo any other available vaccination, which might be deemed appropriate by the University for the safety of the student and of all those he/she can come into contact with, due to the academic activities he/she takes part in.

The form for this statement will be available for download from the portal of the University starting from July 3<sup>rd</sup> 2021.

### Article 11 - Requirements for maintaining the scholarship

Students who are awarded the scholarship referred to in point 7 of this Call will be able to maintain the benefit in the same amount in the years following the first within the legal duration of the course of study if by September 30<sup>th</sup> of each year:

a) have acquired a number of credits at least equal to those shown in the following table:

Year of Course	no. credits
2 <sup>nd</sup>	40
3 <sup>rd</sup>	98
4 <sup>th</sup>	157
5 <sup>th</sup>	215
6 <sup>th</sup>	280

b) obtained an average of marks in the exams referring to the overall educational credits achieved equal to at least 28/30.

To maintain the scholarship it will be necessary to have both of the above requirements.

### Article 12 – Renunciation, transfer and withdrawal procedures

Students who wish to renounce their studies must submit an "application for renouncing studies" using the format prepared by the University and available at [www.unicamillus.org/it/area-studenti/](http://www.unicamillus.org/it/area-studenti/) and send it by certified email to office.unicamillus@pec.it.

In the event of renunciation or transfer, the amounts already paid up to the time of submitting the application for renunciation or transfer will not be refunded in any case.

The renouncing or withdrawing student in any case must pay in full and in advance the fees provided for by the Tuition Fees Regulations related to the Academic Year he is enrolled in.

### **Article 13 - Remarks**

The University reserves the right, in any stage of the enrolment procedure, to ascertain the truthfulness of the declarations made by the candidate, in accordance with current legislation. The candidate must therefore provide all the necessary elements to allow for the appropriate checks. In the event that the documentation submitted by the candidate contains false declarations, without prejudice to the penalties provided for by the penal code and by the special laws on the matter and the declarer's exposure to the action for damages by the other parties, the enrolment will be cancelled, any benefits granted will be recovered and the tuition fees paid will be retained.

The publication on the University website of the final ranking of the candidates who have taken the test and of any reordering is an official notification for all purposes of law towards the interested parties.

The University reserves the right to plan additional sessions, change dates, times, testing location and publication dates of results if it is deemed necessary for organizational reasons and/or for reasons of health safety.

In case of deferment, as long as it is decided prior to the deadline for the application to the admission test, it will be possible to postpone the deadlines for the submission of the applications and, where deemed useful, accordingly modify the other dates provided for by this Call.

The participation in the call for application implies the full and unquestionable acceptance of the provisions contained therein, included the provisions contained in the "Student's Contract", that is published also on the University's website, and that is an integral part of this Call. For juridical and interpretative purposes the Call approved with Rector's Decree n. 107 of November 5<sup>th</sup> 2020, filed and available at the Didactic Office, drawn up in Italian language, and available upon request in certified copy, shall exclusively prevail.

For any matter not provided for in this call for application please refer to the Statute the Didactic Regulations of the Degree Course and the Tuition Fees Regulations 2021/2022 of the University.

### **Article 14 – Supervisory Committee for the regularity of the competition**

With a specific decision, a Committee will be appointed to ensure the regular and proper performance of the operative procedures of the competition.

Vittorino Testa, Director of Student Services - UniCamillus University, is responsible for the procedure.

## Annex 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.



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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).



UNICAMILLUS

## 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. Algebraic fraction. Equations and algebraic 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 plane. 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.